FEEDSTUFFS

The Weekly Newspaper for the Feed Industry

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Feed Tech Advisors Study Growth Prospects at School

MANHATTAN, KANSAS—The possibilities of expanding both teaching and research activities of the Feed Technology School at Kansas State University were explored at a meeting of the school's advisory committee here.

"When new facilities are completed next spring to replace those destroyed by fire, the school will be in a position to undertake a broader research program," James C. North, president of Nutrena Mills, Inc., and chairman of the advisory group, said following the meeting.

Details of an expanded research effort have not yet been worked out, but the college staff has been asked to develop a proposal to present at the next committee meeting in February.

"Industry members of the committ-

(Turn to FEED TECH, page 88)

Feed Contract Based On Cattle Performance Tested on Iowa Farm

By Special Correspondent

SEYMOUR, IOWA — Fifty-two head of beef cattle on the farm of Amos and Courtney Siglin, near Numa, are involved in a four-month feeding contract in which the farmers will pay the feed company on the basis of how well the cattle do on the firm's feed. The Siglins have agreed to pay for the commercial feed—whatever the cattle require—on the basis of 18¢ for each pound of gain the feed puts on their cattle.

A Larro Feed dealer in Seymour, Iowa, B. L. Moore, proposed and developed the contract. He said he was not aware of any other dealers using such a contract.

He agreed to furnish a complete feed in pellet form for the 120-day feeding period. For the last 30 days of the contract, shelled corn and extra protein will be added to the ra-

(Turn to CONTRACT, page 8)

Data Squelches Turkey Condemnation Rumors

By JOHN CIPPERLY

Feedstuffs Washington Correspondent

WASHINGTON—Exaggerated rumors appear to have pasted incorrect labels on reports of the incidence of turkey inspection rejections in two states under the U.S. Department of Agriculture Poultry Inspection Act.

Rumored estimations say turkey condemnations have been running as high as 60% of flocks for federal slaughter inspection. But there is information at hand which strips these rumors of validity. It is known that from the beginning of the present turkey crop year under the Poultry Inspection Act up to Oct. 3, 1960, there were about 12 million pounds of turkeys condemned. Surely this is but a small quantity of the turkey meat available in this year's crop.

The facts are that turkey condemnations under the mandatory federal inspection service have not run higher than 1.23% of all young turkeys inspected and not higher than 2.56% of all older turkeys up to this time in the crop year. Condemnations

(Turn to CONDEMNATIONS, page 88)

Construction Begun On North Carolina Nutrena Feed Mill

MINNEAPOLIS — Construction "immediately" of a 100-ton-daily plant for manufacture of complete animal feed formulas in Wilson, N.C., has been announced here by Nutrena Mills, feed division of Cargill, Inc.

According to James C. North, Nutrena president, contracts have been awarded calling for completion of the plant in April, 1961. The new mill will be Nutrena's second in North Carolina, he said, and the company's 16th operating throughout a 26-state area of the Midwest and South. Nutrena has operated a plant at Mt. Ulla since 1956.

(Turn to CONSTRUCTION, page 4)

Industry Committee, FDA Group to Meet Early in November

CHICAGO—The first meeting of a feed industry committee with a Food and Drug Administration counterpart will be held early in November, according to the American Feed Manufacturers Assn. The meeting was scheduled as a result of negotiations on the part of AFMA with Commissioner George P. Larrick of FDA to arrange for periodic meetings to discuss matters of mutual interest.

The industry committee is to function as a liaison group to consult and to advise with FDA on matters con-

(Turn to COMMITTEE, page 88)

'Nothing to Fear in FDA Enforcement If Mill Makes Compliance Efforts'

By ROGER BERGLUND

Feedstuffs Managing Editor

FRESNO, CAL. — Feed men attending the California Animal Industry Conference were reminded that enforcement of Food and Drug Administration regulations on medicated feeds is being stepped up, but they were told that "there is nothing to be afraid of if you are trying to do the right things in complying with the regulations."

Talks and discussions of FDA regulations were one of the highlights of the California conference, held Oct. 17-18 at the Fresno Memorial Auditorium. More than 400 persons were on hand for the event, which is sponsored jointly by the California Hay, Grain & Feed Dealers Assn. and the University of California.

An FDA official and a University of California veterinarian covered certain aspects of FDA regulations, and Dr. H. S. Wilgus of The Ray Ewing Co., Pasadena, Cal., moderated a question-and-answer session and listed points which feed manufacturers should check in connection with FDA inspections.

For the present, Dr. Wilgus said,

(Turn to ENFORCEMENT, page 85)

Report Based on Oct. 1 Shows Total Feed Concentrate Supply of 271 Million Tons

WASHINGTON—The U.S. Department of Agriculture estimates—on the basis of Oct. 1 indications—a total feed concentrate supply for 1960-61 of 271 million tons. That's 8 million tons greater than last year's record supply.

Within this estimate is the likelihood of the current feeding season's corn supply reaching 6 billion bushels for the first time in history.

USDA pegged 1960 production of feed grains at 165 million tons, slightly below the record crop last year, but this indicated reduction was more than offset by an increase in carryover. The big crop this year would be sufficient to maintain disappearance at the record level reached in 1959-60 and leave a little larger carryover at the close of the 1960-61 season.

The record corn supply forecast follows three decades of rising yields and a number of years of increasing stocks.

Malcolm Clough, USDA agricultur-

(Turn to CONCENTRATES, page 85)

Annual Veterinary Nutrition Meeting Slated Dec. 12-13

KANSAS CITY — Feed men and veterinarians from throughout the nation are expected to gather at the Hotel Continental here Dec. 12-13 for the third annual Veterinary Nutrition Conference sponsored by the Midwest Feed Manufacturers Assn.

The line-up of speakers in both the veterinarian and feed fields, including the president-elect of American Veterinary Medical Assn., Dr. Mark L. Morris of Denver, will present talks and lead discussions aimed at furthering knowledge in the area of more

(Turn to VET NUTRITION, page 88)

Bartlett & Co. Buys Topeka Feed Operation

KANSAS CITY — Bartlett & Co., Kansas City based grain and feed firm, has announced the purchase of the feed operations of the Topeka (Kansas) Mill & Elevator Co.

Topeka Mill & Elevator Co. will make no changes in its grain operations, said Bryan Lynch, president.

The Bartlett feed expansion program is under the management and direction of Mel Miller & Co., Inc., Kansas City. Previously announced in the Bartlett & Co. program was the expansion of milling operations in Carrollton, Mo. (Feedstuffs, Oct. 22).

Central Soya Co. Earnings Decline

FORT WAYNE, IND.—Decreased earnings have been reported by Central Soya Co., Inc., for the fiscal year ended Aug. 31, 1960.

Net earnings after taxes were $4,183,807, as against $6,860,083 for the preceding fiscal year, and amounted to $1.50 a share on 2,790,181 shares outstanding at the year's end, compared with $2.46 a share in 1959 based on the same number of shares. Net sales totaled $276,073,360, compared with record sales of $285,020,459 in fiscal 1958-59.

Earnings before taxes were $8,354,512, compared with $14,224,919 in the

(Turn to CENTRAL SOYA, page 88)

FEEDSTUFFS *Features This Week*

POULTRY INTEGRATION—A completely integrated poultry operation in Mississippi is described on **page 10.**

MICROINGREDIENT PROBLEMS—A discussion of factors affecting microingredient stability in feeds will be found on **page 15.**

CUSTOM MILLING—An industrial engineering analysis of custom feed mill activities appears on **page 18.**

NEW MILL—A new push-button feed plant in Texas is described on **page 26.**

BULK STATION—Operations of a bulk station and farm store are explained on **page 34.**

FINANCING—A Federal Reserve Bank report on feed industry financing of agriculture will be found on **page 72.**

FEED CONTROL—New developments and problems in feed control are the subject of an article on **page 78.**

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The regional circulation of this issue is concentrated in the northeastern states

A New Channel

ANNOUNCEMENT THIS WEEK of the formation of a feed industry committee to serve as a liaison group between feed manufacturers and the Food and Drug Administration can be regarded as a sound move in the direction of improving communications between industry and government. There is a definite need for improvement in this area.

In the months since the Food Additives Law went into effect there too often has been a feeling of frustration and confusion among feed men as to what enforcement procedures and practices of FDA they should be aware of. The precise policies and attitudes of FDA have not been too clear in many instances, and while ultimately explanations and instructions have been made available to clarify individual situations, it has become evident that a "clearing house" approach offers a much more efficient means of getting the answers and filing objections.

FDA officials have been cooperative in making very frequent appearances at industry meetings to explain the agency's position, and this approach to passing along information has been helpful. However, in most instances, the speech-making approach necessarily has had to be more generalized than specific. Of course, it is recognized that administration of a law involving such a radical change has greatly increased the responsibilities and work load of FDA personnel. The Food Additives Law with its Delaney appendage has raised hundreds of questions to be dealt with individually. Answers very often have been delayed both because of the sheer volume of questions and because the complexity of the legislation has required some policy searching among the various levels of the FDA command. Sometimes, apparently different answers have come from different official sources.

THE NEW COMMITTEE WILL HAVE an opportunity to provide a very essential service to both the regulators and the regulated. A formal agenda will be developed for the meetings with FDA personnel, and industry members are invited to submit specific suggestions for the agenda. In this way, the questions can be narrowed down from the individual hundreds to perhaps dozens. Also, sound, sincere suggestions to FDA on matters of administration and enforcement can be presented with the added impact and authority inherent in an officially-designated committee. The American Feed Manufacturers Assn. will name six members to the committee, and the Grain & Feed Dealers National Assn. already has designated three members. (See story on page 1.) Special reports will be issued covering each session, with the first scheduled for early November.

It is the considered opinion of industry leaders that stricter enforcement of FDA regulations is something the industry will have to live with from now on. This fact also was driven home perhaps more forcefully than ever before to large numbers of feed men at the Feed Production School (Feedstuffs, Oct. 1). However, the industry owes it to itself to do whatever is within its power to assure reasonable, fair and equitable treatment by FDA and this, primarily, is what the liaison group will attempt to accomplish, relying necessarily on the interest and cooperation of individual feed men.

WHAT OF THE LARGER ISSUE—an ultimate solution to the Delaney Clause problem? Can the feed industry, through its closer working relationships with FDA hope to start untangling this legislative web in which it is caught? Indications at this point are that such an approach is likely to be beyond the scope of the committee's assignment. Arthur Flemming, secretary of the Department of Health, Education and Welfare, has made eminently clear its position in support of the Delaney approach to food and drug legislation, and FDA personnel are bound by the inflexible language of the law, at least as it is now interpreted by the agency's legal authorities. While the inequities imposed on industry by administration of the Delaney clause probably will appear on the committee's agenda, discussion of the Delaney philosophy itself, under present circumstances, might well be considered academic by FDA officials.

Obtaining a change in the law apparently will depend largely on the attitude and temper of the new Congress and administration, although the career staff of FDA is not without influence in legislative matters. It perhaps will take some time after the election to gauge the outlook for possible changes in the law. In the meantime, the feed industry may find that its new means of approaching FDA problems can illuminate the path toward tackling the legislative problem.

How's Business?

AN EVERY WEEK REVIEW OF FORMULA FEED BUSINESS VOLUME, INCLUDING PRICE, SUPPLY AND DEMAND TRENDS

Feed business continues strong throughout most of the country. Seasonal factors are holding back sales volume in some areas, but these are temporary. The hog-corn ratio, based on Chicago prices, slipped to 15.8 this week from 16.4 the week before, but remained well above 12.5 for the same week last year. The wholesale feedstuff price index advanced to 73.2 this week from 72.5 the previous week. It was 79.2 a year earlier. The feed-grain index went down—it was 60.3 this week compared with 61.2 last week and 63.3 a year ago. (Feed markets in detail on pages 86-88.)

Northwest

This is the season when this area is usually moving into heavy feeding, but reports from feed manufacturers indicate otherwise. At least, the expected boom in formula feed sales is being delayed.

Business is slow. The weather continues perfect for finishing up bean harvesting, corn picking and fall plowing. Current hog prices are thought to be holding back sales in this line. Turkey feed is still tapering off as the birds are marketed. And, there is an abundance of grain available in the area.

The picture is not so bad that production schedules are being cut, but the expected spurt just hasn't materialized.

On the ingredient markets, soybean oil meal appears to be stabilizing at about $41@41.50 for 44% after several weeks of declining. Alfalfa meal advanced about $2. Bran and middlings both went up $2-3, as did linseed oil meal.

Southwest

Formula feed business in the Southwest continues heavy, but not with all segments of the trade. Most mills have been operating at capacity on cattle feed sales, with runs of five to six days about the average, and occasional mills reporting a seven-day operation. Bookings of future cattle feed and dairy rations have been heavy, being stimulated by new crop lows on soybean meal coupled with a short-lived cold spell.

Hog feed sales are still heavy and egg feed sales are good both through dealers and through integrated programs. Broiler feed business was reported as only fair.

Ratios in all areas of feeding continue favorable and the trade is optimistic of the immediate future.

Ingredient prices were nominally unchanged for the week, and most formula feed prices will go out with only minor changes.

Southeast

All types of formula feed business are reported as being fairly good, with mill running time being about normal. In most southeastern states chick placements on the farm remain about unchanged, with broiler prices down ½¢ lb. this week, making the price 15¢ f.o.b. the farm.

With greater offerings of soybean meal from southern processors this week, prices declined for November-December shipment $2 per ton. With soybean meal selling at $5 per ton under cottonseed meal, many feed manufacturers are switching over to the cheaper protein.

Cottonseed hulls continue to be in tight supply with prices advancing in the Mississippi Valley $1 per ton, and in the Southeast, asking prices are now $22-23 per ton, which is up $7 per ton from the low.

Good demand for corn is causing the market to show some strength, with prices ranging from $1.10 f.o.b. the elevator to $1.27 bu. delivered, depending upon destination.

Plans of citrus processors to commence operations this week in a limited way did not materialize, due to high prices of fruit, but they hope to commence operations next week. Demand for citrus pulp continues good, with prices firm at $47.50 per ton f.o.b. producing points.

Northeast

The improved tone continued in the formula feed market and is expected to hold through next week. Although mixers' running time wasn't raised, a better feeling persists. The election could cause a stalemate, but it would be short-lived because nobody has large inventories.

Mixers closed out the month of October with sales up slightly from a month ago and a year ago.

Strong prices for eggs are currently pushing egg mashes as growers strive for more production. Dairy feeds are in good demand and should hold through for the rest of the winter. But turkey feeds are grinding to a halt as the growing season wanes.

Broiler feeds are "no good," and 14½@15¢ lb. levels have shown up in a weakening market in the East.

However, there still are some pullets to develop and they will require growing feeds, and some breeder feed demand is expected for next year's laying flocks.

Ingredient prices were mixed during the week in a seasonal pattern. Corn was off 2¢; oats were down ½-1¢; barley was 1¢ lower, and feed wheat held steady. Linseed oil meal rose 50¢ to $1 and cottonseed oil meal gained $2 in a steady vegetable protein market. Meat scraps held steady and fish meal continued to drag.

Running time of formula feed manufacturers averaged 36 hours last week, with some cooperatives up to 40 hours.

Central States

The evidence of an over-all fair demand earlier in the month seems to have disappeared to some degree at least, with no particular inclination shown toward a healthier situation in the matter of a larger volume and a more satisfactory backlog of orders on the books.

As one feedman said, "It has the aspects of a typical inventory adjust-

(Turn to MARKETS, page 91)

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Will Soybean Stock Position Provide 'Bullish Surprise'?

By JOHN CIPPERLY
Feedstuffs Washington Correspondent

WASHINGTON — Will the Oct. 1 stock position report for soybeans of approximately 23 million bushels in all positions provide a "bullish surprise" to the markets and the processing industry?

This estimate of the U.S. Department of Agriculture as of the close of the old crop year and projected estimates of disappearance for the coming crop year might disclose a confirmed opinion of market bulls that, as the new crop year contracts advance, prices currently posted may seem cheap.

A deterring factor is that the March-May contracts at Chicago indicate an approximate 10¢ bu. carrying charge is in effect and will possibly dampen bullish enthusiasm in the speculative markets.

The 23-million-bushel carryout of old crop beans represents about 3.3 million bushels at the farm level—owned by farmers. The Commodity Credit Corporation holding of old crop beans from the take-over under loan defaults is currently estimated at approximately 8 million bushels as of Oct. 25. The crop stock position report is as of Oct. 1, however.

The 3.3 million bushels of beans at the farm level is, from a practical viewpoint, uncollectible since the beans are on many hundreds of farms.

12 Million Bushels

That leaves a balance of about 12 million bushels, on the basis of the Oct. 1 stock position report for beans, in the hands of processors and country elevators—in short 12 million bushels in the free market from the old crop.

The new crop is now estimated at 562 million, making, on the basis of the stock position report of 23 million, a total of 585 million.

Disappearance of beans for crush may be safely estimated as about 400 million bushels. At USDA, there is no correlation of the larger disappearance of corn—now running at better than 4 billion bushels per year—with that of beans.

There should and must be some relationship. A continued 4 billion or more disappearance of corn for this crop year can only mean that soybean meal demand will not fall short of the 392-million-bushel crush of 1959-60 crop year. It may be more.

The soy oil export situation, according to Foreign Agricultural Service officials, indicates that FAS will

(Turn to SOYBEANS, page 39)

Burrus Flour Mills Nationalized by Castro

HAVANA, CUBA — Burrus Flour Mills, Havana, was among 166 enterprises, owned by U.S. firms and citizens, which were nationalized by the Castro regime Oct. 25.

The nationalization move was in retaliation for the U.S. embargo on exports of certain goods to Cuba. Together with previous nationalizations, the action almost eliminated major investments of U.S. citizens in Cuba.

The decree approved at the time of the first nationalization in August provided for payment to the U.S. owners of property nationalized. This decree stated that in the event U.S. should permit entry of more than 3 million tons of sugar from Cuba, part of the money received from the sale of such sugar in excess of 3 million tons would be set aside for payment for U.S. property nationalized.

Last July, the U.S. reduced Cuba's sugar quota, and there is some question whether U.S. will purchase much sugar from Cuba in 1961.

Week's Price Trend Up on Large Eggs

NEW YORK—The price trend was, for the most part, upward on eggs, while poultry values were unsettled and turkeys gained slightly during the week ending Oct. 26, the U.S. Department of Agriculture reports.

The price trend was upward on large eggs, irregular on mediums and well sustained on smalls. Offerings of large failed to meet trade requirements and prices ranged 3-5¢ higher. The price trend on mediums was irregular, ranging from 2¢ lower to 3¢ higher. Smalls were well sustained under limited offerings and active demand. Present price levels averaged about 20¢ above the same period a year ago.

Prices paid at the farm in Iowa for grade A large were up 4¢ at 39-47¢ and mediums up 2¢ at 30-38¢. Smalls were unchanged to 2¢ higher. New York wholesale prices on large rose 3½¢ to 54-58¢, while medium and small remained the same. Los Angeles prices to retailers delivered in cartons remained the same on all sizes.

Values in southern growing areas on poultry as the period closed were unsettled with Georgia and North Carolina declining ½¢ to mostly 15¢ farm price, while trade in the balance of the states in the area was at mostly undetermined prices or reflected a greater volume of trade at lower levels. On the Delmarva peninsula, prices averaged ¼¢ higher at the close and ranged mostly 16½-17¢.

Ready-to-cook prices ranged ¼-1¢ lower at most major distributing centers.

Pesticide Residue Problem for Trade In California Eases

FRESNO, CAL. — The pesticide residue problem for the California feed trade appears to have eased greatly, and reports indicate that feed men are not signing written guarantees that dairy feeds do not contain pesticide residues.

It was noted in conversations at the recent California Animal Industry Conference that feed mills have taken steps to assure that feeds will not contain residues above the level considered safe.

Harry E. Spires, chief of the Bureau of Field Crops of the California Department of Agriculture, who is responsible for feed control activities in the state, told of the results of analysis of 30 samples of mixed dairy feeds in September. Twenty samples showed no pesticide residue. Seven samples showed a residue level of 0.05 ppm. Any residue in feed up to this level is considered safe since there will be no residue in the milk from animals receiving the feed. The highest residue level found, Mr. Spires reported, was 0.1 ppm.

Mr. Spires pointed out that the industry wants its feed to have no residue at all and that feed mills generally are not using agricultural by-products which might contain pesticide residues. These include by-products from lettuce, beans, grapes, tomatoes, apples and other processed products. Also, he said, residues are seldom found in alfalfa meals.

The agriculture official pointed out that hay as well as other feeds is being checked and that more and more is found to be free of residues. Operators of airplanes which spray pesticides on crops are said to be more conscious of possible residue problems, and there is less drift onto other fields.

In general then, it appears that cooperation among the feed trade, control officials and others has largely solved the problems which feed men faced in connection with possible residues and written guarantees against the presence of residues in feed.

Cudahy Names Animal Feed Unit Manager

OMAHA, NEB.—John C. Flor has been named manager of the animal and mineral department of the Cudahy Packing Co., to succeed J. C. Hickerson, who is retiring Nov. 1.

Mr. Flor has for several years been special mineral feed representative in the southern states territory.

Columbus Feed Club To Elect Officers

COLUMBUS, OHIO — Election of officers and a salute to past presidents will be features of the Nov. 7 Columbus Feed Club meeting at the Southern Hotel.

An addition to the nominations announced earlier is Russell Younce for vice president. A total of 14 past presidents will be honored at the meeting also. Lee Miller, test pilot of jet planes for North-American Aviation, Inc., will be guest speaker.

NEW FEED DEALER

CRESTON, IOWA — The Creston Feed Co. here is a new dealer for the Rath Packing Co. line of livestock and poultry feeds. Roland Routh is owner of the firm and Stanley Werth is salesman.

CONSTRUCTION

(Continued from page 1)

Mr. North said the new mill will be equipped with the most modern automatic machinery for producing balanced formula feeds in pellet, crumble or mash form, using local grains and advanced handling methods for both bagged and bulk products.

"Eastern North Carolina is one of the nation's greatest potential areas for development of strong production and marketing of meat, milk and eggs," Mr. North said. "With historic plantings of tobacco restricted more and more, farmers have been turning naturally, but slowly, to grain and livestock for cash income. With the counsel and cooperation of the outstanding agricultural leaders in the area, we plan to build sales through a highly trained technical staff, new animal production systems, a selected, strong dealer organization and unmatched service that will enable customers to expand their production and markets with greater assurance and profits. The new mill is a symbol of progress both for the area's agriculture and for ourselves in our 40th anniversary year."

A district manager, territory managers and specialists in poultry, dairy, swine and other production will serve dealers and large feeders throughout the Eastern Carolina area, Mr. North said.

Adjacent to Elevator

The mill, with both rail and truck receiving and loading facilities, will rise adjacent to an existing Cargill grain elevator on approximately two acres of land.

Mr. North pointed out that his firm has been active in North Carolina agriculture for many years, "selling Nutrena products since we acquired the old Staf O-Life brand in 1951, operation by Cargill of the Wilson elevator since 1950, other elevators at Washington and Belhaven and by construction in 1957 of a large export elevator at Norfolk which has greatly expanded the area's market for crops." He said Cargill also built the region's largest soybean plant in Norfolk in 1959 to supply protein meal to an expanding poultry and livestock industry.

The feed executive expressed appreciation for aid from city, county and state officials and agricultural leaders in enabling his firm to "spread roots and grow," along with the area's farm economy.

General contractor is Sprout, Waldron & Co., Muncy, Pa.

AFMA Describes Implications of Antibiotic Ruling

CHICAGO—Of the many new and altered ingredient definitions adopted by the American Association of Feed Control Officials at their annual meeting in Washington, the American Feed Manufacturers Assn. considers the new antibiotic identification as "the single, most important change, with widespread and far-reaching implications."

Describing the new definition, AFMA noted that the term "antibiotic feed supplement," previously used in the listing of ingredients to describe all antibiotics or combinations of antibiotics at levels of 50 gm. or less and used only for growth stimulation and/or increased feed efficiency, is no longer in effect.

In the future, AFMA explained antibiotics used under these conditions will have to be individually identified by name in the listing of ingredients. The names used will be those shown on pages 40 and 41 of the 1960 Official Publication of AAFCO, with the following exceptions:

(1) If zinc or manganese bacitracin is used, it should be identified.

(2) Oleandomycin rather than oleandomycin chloroform adduct should be used.

Bacitracin, Oleandomycin

AFMA adds: "Actually, manganese bacitracin and oleandomycin now fall under the term food additives and currently must be labeled as such. However, the Food and Drug Administration has indicated it is taking steps that will enable feed manufacturers to identify them in the same manner as the other antibiotics for 1961."

The amount of antibiotic present does not have to be declared when fed at less than 50 gm. levels and

(Turn to AFMA, page 85)

Mississippi Co-op Plans 2 Feed Mills

JACKSON, MISS.—Plans for construction of two feed manufacturing plants have been approved by Mississippi Federated Cooperatives, according to Ernest Spivey, manager. One plant would be located in the northern part of the state and one in the southern part of the state.

Estimated cost of the two mills will be in excess of $400,000. They will manufacture a complete line of basic livestock and poultry feed under the "Clover Brand" label, Mr. Spivey commented.

Although negotiations are under way to determine the most practical locations for the two mills, final contracts have not yet been executed. Announcement of the plant locations will be made later.

Mr. Spivey said the most modern machinery necessary for mixing and pelletizing feed according to highest standards will be installed in the plants and feed formulations will be based on the latest research data.

Actual construction of the two plants is expected to begin within the next 60 days with time for completion and full operation set for spring of 1961.

It is believed that present volume of feeds purchased for member co-ops by MFC will be adequate for efficient operation of the two new mills and one now operating in Jackson, Miss. Previously most of the feed purchased by MFC has been manufactured outside of Mississippi and it is expected that savings in freight should result in lower cost feed for co-op member patrons, Mr. Spivey said. In addition the mills will provide a market for Mississippi grown grain.

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CALIFORNIA CONFERENCE—Some of the speakers and other program participants at the California Animal Industry Conference in Fresno are pictured here. Left to right in the first picture are: Dr. George Kohler of USDA, Albany, Cal.; Dr. George Davis, University of Florida; Dr. F. H. Kratzer, University of California, and Robert W. Caldwell, Andersen-Smith Milling Co., San Francisco. In the second picture are three California scientists, Dr. J. H. Meyer, head of the animal husbandry department; Dr. F. W. Hill, poultry department chairman, and G. R. J. Law. In the third photo are Bert Maxwell, Nulaid Farmers Assn., Petaluma, program chairman, and Dr. H. S. Wilgus, the Ray Ewing Co., Pasadena, vice chairman.

California Group Told

Mineral Knowledge Gains, But There's Still a Lot to Be Learned

By ROGER BERGLUND
Feedstuffs Managing Editor

FRESNO, CAL.—The opportunity for further improvements in feeding through advances in mineral nutrition was brought out at the California Animal Industry Conference.

The more than 400 persons on hand for the conference at the Fresno Memorial Auditorium were told of recent developments which add to the body of knowledge of mineral nutrition. But at the same time they were reminded that there still is a good deal to be learned about mineral requirements of animals and minerals in feed formulation.

"Today, in minerals, we are about where we were in vitamins back in 1935," said Dr. George K. Davis, University of Florida nutritionist. "We know them, but we still don't know much about them."

Discussing trace element interactions, Dr. Davis cited findings which show that a nutritionist or feed man now can't think of one mineral without considering others. Also, he emphasized, level and kind of protein in the diet are a vital factor in mineral nutrition.

Dr. Davis' talk was one of three which dealt with new developments in mineral nutrition. Others covered zinc studies with poultry and calcium and phosphorus studies with sheep.

The papers on minerals were just one part of a two-day program Oct. 17-18 which got into various aspects of animal and poultry nutrition. Other points made by speakers included these:

● New, improved information on energy values of feedstuffs can be very useful in feed formulation and in predictions of ration performance and in other ways. There are some major exceptions, but in most cases feed efficiency is related closely to energy concentration. In some important feeds, there is no ceiling on energy concentration; it is strictly a matter of economics.

● Although there is still a good deal to be learned, knowledge of growth factors in forages is increasing; this includes further information on estrogenic activity in alfalfa.

● The nutritional literature includes reports on many research jobs that have been well done, but it also has many "mistakes, errors in concepts and 'booby traps' which should be called to the attention of all."

● Several California field-trials with all-concentrate rations for beef cattle have quite consistently shown increased feed efficiency, in most cases a higher dressing percentage and at least some improvement in daily gain.

● A poultry field trial showed that pullets treated with restricted light produced better, and the group also had less mortality.

● California research in blood groups of turkeys is going forward, and the application of the first studies to analysis of populations, from the viewpoint of the turkey breeder, is a phase for future research.

The conference — which drew a large attendance from the big feeding state of California, plus other areas— was sponsored jointly by the California Hay, Grain & Feed Dealers Assn. and the University of California.

Summaries of talks follow:

TRACE ELEMENT INTERACTION IN NUTRITION—The complexities of trace mineral nutrition, with the various interactions which have been discovered, were brought out in a talk by Dr. George K. Davis of the University of Florida, a leading authority in this field.

Today, in minerals, we are about where we were with vitamins in 1935, Dr. Davis commented. Various minerals are known, but not enough is known about them.

Now one can't think of one mineral without considering others, he emphasized. Also, the level and kind of protein are vital factors. No longer can one take a gunshot approach in feeding minerals.

After citing information on various interactions, Dr. Davis commented: "It would appear that the interaction of micro-minerals is confounded by an interaction of calcium and by an interaction with protein, or at least by nitrogenous materials which are frequently present in the diet. These interactions are apparent usually when micronutrients are at marginal levels. It has been possible to prevent the development of abnormalities by increasing the level of trace minerals by factors of 2 to 5 times. However, if the trace minerals are increased indiscriminately, it may on occasion lead to serious imbalance, with the development of toxicity or, because of interaction, a deficiency of one of the other elements."

One of the things pointed out by Dr. Davis is that excess calcium can cause trouble. It is a common failing, he said, to increase the level of calcium by a factor of up to several hundred per cent. Evidence has accumulated that such a practice may develop iron deficiency anemia, iodine deficiency goiter, and zinc deficiency parakeratosis, perhaps manganese deficiency perosis, and possibly a copper deficiency.

Research has shown the calcium-zinc interrelationship in pigs, but this is not the whole story. Dr. Davis noted that Illinois work has shown that use of soybean meal increases the requirement for zinc. Including casein as the source of protein may make it possible to add very high levels of calcium and comparatively low levels of zinc without any evidence of parakeratosis. This, said Dr. Davis, points out the role of protein and perhaps protein components in the utilization of trace minerals. In Florida work, Dr. Davis and associates have shown that both kind of protein and level of protein have a marked influence on utilization of zinc.

Apparently there is a chelating action or sequestering action involved in mineral nutrition, Dr. Davis explained.

He also discussed copper and other elements and the interactions, and he noted that it is reasonably certain from Florida work that the type of forage, and the presence of sequestering agents within the forage, may have a marked influence on copper metabolism of cattle.

ZINC STUDIES WITH POULTRY—Recent research with zinc for poultry, including findings that soybean protein may affect availability, was outlined by Dr. F. H. Kratzer of the University of California poultry department.

Dr. Kratzer cited various studies showing the necessity of zinc in various types of rations, including those for hens as well as other birds. Zinc is essential in several enzyme systems, but it is not known which ones are involved.

Several workers, Dr. Kratzer noted, observed that the requirement for zinc was greater when the basal diet contained isolated soybean protein instead of casein, gelatin or egg white. Further work demonstrated that the zinc requirement of poults was reduced when the isolated soybean protein was autoclaved. The addition of a strong chelating agent, EDTA, also made the zinc in soybean protein available. A possible explanation may be that the EDTA forms a complex with the zinc, taking it away from the isolated soybean protein material. Thus, the EDTA complex may be absorbed, but the zinc in turn is removed from the complex by various tissue components which have a high affinity for zinc.

A significant contribution to the explanation for the unavailability of zinc in soybean protein was made by Missouri workers when they showed that phytin may be involved. The reason for the indigestibility of the zinc-phytin-protein complex is still unknown.

Dr. Kratzer also said that rendering zinc unavailable may not be a property specific to soybean preparations. Evidence that it is a more general phenomenon has been presented in work with peas and sesame meal. In addition, metals other than zinc may be involved.

More research in this field is needed. In the meantime, the addition of a zinc salt to practical poultry rations seems that most advisable way to insure an adequate supply of zinc in the ration, Dr. Kratzer said.

It is not possible, he pointed out,

(Turn to CALIFORNIA, page 88)

Morrell Names New Manager for Foxbilt

DES MOINES—Wayne A. Rodgers has been appointed general manager of the Foxbilt feed and Ames Incross poultry operations of John Morrell & Co. in Des Moines, according to announcement made Oct. 28 by W. W. McCallum, Morrell president.

J. K. Lepley will be assistant general manager as well as sales manager of the Foxbilt operation. Mr. Rodgers replaces E. L. Fox, who has resigned from management of the Foxbilt business in order to devote his time to outside business activities. Mr. Fox will continue as a director of Morrell's feed division.

Other Foxbilt personnel will remain in their present positions, according to the announcement by Mr. McCallum.

Both Mr. Rodgers and Mr. Lepley, who reside in Des Moines have been active in Foxbilt management for approximately 12 years.

Early this year John Morrell & Co. acquired the Foxbilt and Ames In-Cross businesses in Des Moines and the Golden Sun Milling Co., Estherville, Iowa.

Herman A. Jensen of Estherville, a Morrell vice president, will continue as manager of all Morrell feed operations.

Lawrence Jensen will continue as general manager and Emmet Amdahl will remain as sales manager of the Estherville operations.

Futures on Oilseed Meal Move Upward

MEMPHIS — Reflecting improved immediate cash business, oilseed meal futures prices last week moved upward on the Memphis Board of Trade.

Trade principally was a close-by market in soybean oil meal, although fair interest developed in forward buying as bargain opportunities appeared.

Prices tightened considerably in cottonseed oil meal, both futures and cash. The demand from domestic sources was better than in some weeks for solvent and old process cottonseed oil meal. The export market remained quiet and apparently will furnish much less business than a year ago when central Europe suffered a drouth.

The October contracts expired quietly on the futures boards Oct. 20.

Unrestricted soybean oil meal futures closed Oct. 25 at 50¢ a ton higher than Oct. 18. Eastern Trunk Line soybean oil meal was unchanged and bulk cottonseed oil meal unchanged to $1.50 higher.

Trading volume for the week amounted to 300 tons of bulk solvent cottonseed oil meal.

MILL COMPLETED

OSAGE, IOWA—A feed mill, the third unit of the Co-op Elevator here, has been completed.

On-Farm Mixing Survey—Part 2

Feed Men Tell What They're Doing to Combat 'Problem'

By JIM RUTTER
Feedstuffs Staff

"Farmers could probably save some money if they bought tractors in parts and assembled them at home," says a provoked feed man. "But they seem willing to leave this technical and specialized job to others. Is the preparation of feed so very different?"

This feed manufacturer admits there is no single answer for all farms. "Sure," he says, "maybe some operators can mix their own feed and make it pay. But this is a mighty small percentage of all the livestock and poultry farms in the nation.

"We can list a number of points that make a strong case against on-farm mixing. The big problem as I see it is to wake the feed industry up and start combating this trend."

This spokesman looks upon farm mixing as a real hazard to the feed industry. Most feed men aren't showing such strong feelings about the trend now. Still, they are following it with interest and, in many cases, starting to make adjustments in their own organizations that will let them become more competitive.

(As Feedstuffs reported in the first article of this series, appearing in the Oct. 22 issue, most feed men agree that farm mixing bears watching, but don't regard it as an immediate problem. In the four-state area survey by Feedstuffs, few companies reported any noticeable changes in their sales patterns.)

Industry Comments

Even so, the subject is being discussed a lot by members of the feed industry. Here are some of the thoughts offered by feed representatives explaining why they feel that farm feed mixing is not a sound business venture for most livestock and poultry farmers:

"First of all," these men say, "the $15 or $20 per ton saving reported in some instances is not a net saving. On a big volume basis, and with careful buying, this might be a difference between ingredient costs and the price of formula feed.

"However, from this figure, farmers must start charging off taxes, insurance, depreciation, interest on investment, repairs, labor, operating expenses and so on.

"Farmers are really misled if they take a quick glance and assume that the economics of farm mixing is simply the difference between what they can buy ingredients for and what the feed manufacturer charges for the same amount," says one feed company executive.

"To figure accurately the feasibility of home grinding and mixing, the total cost of the operating must be included and then compared with the local custom rate."

Feed manufacturers complain that much of the publicity and promotion given on-farm mixing hasn't presented an accurate account of the total costs.

"Distorted" Pictures

"I know of some equipment or ingredient salesmen calling directly on farmers who present distorted pictures of farm mixing," says one feed man. "They figure the cost of basic ingredients on a ton basis and compare this with what the farmer is paying for a commercial feed. This is certainly not a sound method of learning least-cost efficiency or comparing the two systems.

"How much time can a farmer spend mixing his own feed? Both time and capital come in limited amounts for farmers now. These are reasons why they have to analyze the situation and determine where they can realize the most returns for their investment and labor. It's a matter of considering total economics."

Another man points out that many successful farmers still haven't learned to keep accurate records. "Except for the broiler growers, few farmers know exactly what their costs are . . . and they can't keep looking at that crib of corn as if it didn't cost them anything, either."

"It's up to us to tell the true story to the farmer," says another man. "We seem to be getting less and less reliable support from the agricultural colleges in the Corn Belt. It hurts the feed industry every time someone does a cost comparison and leaves out a few vital farm mixing costs . . . or when someone issues a report saying you need oil meal but can get along without formula feeds."

Feed men seem to agree that service will be the key factor in successful competition with farm mixing. Most feel that by improving and expanding their services, or by selling harder the services they now offer, they can at least hold their own, and maybe still increase sales.

Move to Country

"We've decided that to give improved service, we're going to have to move closer to the customers," says an official of one big feed company. "This means decentralizing and operating much like a local mill, with a smaller trade area.

"Actually, we are encouraging this now at our central plant with a special loading dock for farmers. A direct sale like this is still listed through the dealer, but the farmers get a discount for picking the feed up.

"Admittedly, under this system, the dealer will eventually be eliminated. We'll have trained salesmen or servicemen working out of our local mills, and we'll depend upon this group to make our services attractive."

Another man says that he, too, believes the dealer system will break down in the future. "Big feed companies are going to have to make some adjustments to compete with farm mixing," he says, "and they are going to want more control over their products and sales than is possible with a dealer organization."

Another company is planning to meet farm mixing competition with "better qualified" salesmen.

"We're going to change the concept of the feed salesmen in our company," officials say. "In the future, these men will be highly trained, well-oriented feed businessmen-salesmen—not just feed salesmen."

Some representatives of big companies say that the small mill is in the strongest position to meet the farm mixing challenge. They say the small feed manufacturer is better able to personalize service, offer customized formulas and low-margin prices.

This writer talked with some local feed manufacturers to see what they are saying.

"My plant is in a grain-sufficient area so we can't waste time worrying about whether or not we're selling complete feeds," says one small mill owner. "If a farmer has enough livestock to warrant a grinder-mixer, and if he buys a good one, he'll get along all right and we don't argue the point with him.

"Our challenge is to sell these farmers concentrates. To do this, we have to keep educating our customers. This isn't a simple job, though, for they don't come around to the office anymore.

"There are dozens of salesmen calling on these better livestock producers on the farms and they are offering all sorts of deals on feed, drugs and equipment.

"Obviously, we can't educate our cutomers if we can't see them—so we're going out to the farms like everyone else. Our trade area will be extended from 15 miles to about 40 miles, and we'll be offering personal service and prices that are hard to beat."

A second local mill owner in Illinois admits that he, too, is making calls on farmers in the country. "We'll be promoting special or custom formulations at a low-margin price. If we build volume, we can have a low margin and still come out with a profit because of our low overhead."

This man intends to give farmers any formula of feed they want for the cost of ingredients, plus a standard service charge for the mixing and delivery. A second flat rate will be charged for pellets.

"Also, we're promoting the advantages of the grain bank," he says. "Our complete feed business is climbing steadily, and I think it stems from the popularity of the grain bank system. I sell premixes, too, but don't make any effort to push sales here."

"Key" is Service

"Service is the key to the future for this mill," comments the co-owner of a small feed plant in Wisconsin. "We'll pick up the grain on the farm, haul it to the mill, make a complete feed and deliver it to the farm again—and all of this service is free. The farmer just has to use our concentrate.

"We have several customers who have grinding and mixing equipment on their farms. But they don't want to bother with the job when we do the work fast and at a low cost. Farmers get busy and can't profitably spend their time mixing feed."

"Whether our competition is farm mixing or local mills, it looks as though we're going to have to move out into the country where we can be sure that our service is all that it should be," says one major company executive.

Service enters the picture in many different ways. For instance, valuable services are performed every day by feed company representatives operating in the field.

Most manufacturers have specialists trained in advising producers on feed needs or, for example, assisting with marketing problems. In fact, it isn't uncommon to find producers seeking advice from their feed suppliers on their entire management program.

The extension of credit is another

(Turn to SURVEY, page 91)

William Cushing
Vice President
Protein Blenders, Inc.,
Iowa City, Iowa

Ken Baer
Merchandising, Operations Mgr.
Feed Division
Illinois Farm Supply Co.

Willis Sauder, Sauder's Feed Service, Tremont, Ill.

INTERVIEWED—Comments regarding on-farm mixing and its influence on the thinking of decision-makers in the formula feed industry were gathered from many feed men, including those pictured above, and pooled by a Feedstuffs staff writer in the development of the accompanying article and others in a special Feedstuffs series.

EDITOR'S NOTE: *This article is the second in a series discussing on-farm mixing of feed. A recent Feedstuffs survey in four midwestern states (Minnesota, Iowa, Illinois and Wisconsin) shows that, while the future of farm mixing is still a guessing matter, most feed companies are expressing only moderate concern. The feed representatives contacted say that while farm mixing can be many different things, the major threat to the industry lies in two areas—farmers who buy commercially prepared premixes or super concentrates and mix this on the farm with protein and grain, and farmers who start from scratch and buy all of the basic ingredients. In this article, the thoughts of these feed men have been "pooled" to bring out some of the reasons why they feel farm mixing won't become a major problem and to discuss some of the changes a few companies are making to become more competitive in this business of manufacturing feeds.*

Western Grain, Feed Convention Slated

DES MOINES — More than 1,000 feed and grain men from Iowa and surrounding states are expected to attend the annual convention of the Western Grain and Feed Assn. of Iowa to be held Nov. 20-22 at Hotel Fort Des Moines here, according to Bob Skinner, executive secretary.

The theme for this 61st annual convention is: "For Unity, Enthusiasm and Action—Go Western."

Among the speakers scheduled to appear at this event are: Charles S. Force, president, Grain & Feed Dealers National Assn., and the owner and manager of Little Bros. Feed Co., Kalamazoo, Mich., will give a report on activities of the national association and speak on "How to Make Money in a Feed Business Today."

George Greenleaf, secretary, Ohio Grain & Feed Dealers Assn., Worthington, Ohio, will speak on "Managing Your Feed and Grain Business for a Profit."

J. R. McCann, manager of fire prevention, Ralston Purina Co., St. Louis, will give a demonstration and talk entitled, "How to Prevent Dust Explosions in Your Feed and Grain Business."

John K. Minnoch, Chicago, a humorous business and sales speaker, will speak on "Sense and Nonsense."

Ray Pollock, Pollock Elevators, Walford, Iowa, will speak on "New Responsibilities—Yours and Mine."

Dean Daniels, manager, McMaster Grain Co., Sioux City, Iowa, will moderate a panel entitled, "The Grain Storage Situation in 1961." The panelists will include Jack Roberts, director, Grain Branch, USDA, Washington, D.C.; Joe Haspray, director, Commodity Stabilization Service, USDA, Evanston, Ill., and Harold Brightwell, program specialist, Iowa State ASC office, Des Moines.

B. C. Swanson, owner of Swanson Elevator Co., New Sharon, Iowa, and vice president of Western Grain & Feed Association of Iowa, will discuss "What It Takes to Be a Successful Retail Feed Salesman."

One of the anticipated highlights of the convention will be an "open discussion" in which such subjects as grain bank operations, credit control, Food and Drug Administration regulations and other subjects of interest to feed and grain men will be discussed, Mr. Skinner said.

A variety of products, equipment and services will be on display by 18 exhibitors on the lobby floor of the hotel. Twenty-four firms will maintain hospitality centers and display rooms.

There will be a brunch for the ladies attending the convention Nov. 21. The 1959 Mrs. America, Mrs. Clarke Priebe of Des Moines, will give a talk and show a movie covering some of the events leading up to her being crowned Mrs. America and also some of her activities during the year she reigned.

That evening there will be a banquet and floor show.

Current officers of the Western Grain & Feed Association of Iowa are: President, Robert B. Couch, general manager, Bates-Couch Grain Co., Des Moines; vice president, B. C. Swanson, owner, Swanson Elevator Co., New Sharon, Iowa; treasurer, C. D. Whitaker, manager, Swift & Co. soybean mill, Des Moines, and executive secretary, Bob Skinner, Des Moines.

LOUIS J. TABER DIES

SYRACUSE, N.Y.—Louis J. Taber, master of the National Grange for 19 years, died at his home here at the age of 82. Survivors include his wife and two sons, J. Paul Taber of Ithaca, N.Y., and Francis B. Taber of Alliance, Ohio. Mr. Taber had served on national committees on food and farm problems under six U.S. presidents.

AT ELK RIVER—Zenichiro Yasuda, director of the Japanese Ministry of Agriculture's Livestock Bureau, listens to a translation of a question put to Dr. Cloy Knodt (left), director of the Cargill-Nutrena Research Farm, by another member of the six-man Japanese Feed Grain Mission during the group's visit to the facility.

Japanese Visitors Tour Nutrena Farm

MINNEAPOLIS — Production systems for livestock and poultry were the center of keen interest for a six-man Japanese feed grain mission which toured the Cargill-Nutrena Research Farm at Elk River, Minn.

The group, on a month-long swing through the U.S., spent an afternoon looking over the experimental facilities at the farm and getting answers to questions from Dr. Cloy Knodt, research farm director.

Dr. Knodt explained to the group that research at the farm not only includes feeds and feeding programs, but also buildings and equipment, management methods and marketing of end products. Farmers, he said, need help in such things as choosing strains of poultry, vaccination and other health measures. Thus, a "systems research" concept governs experimental activities at the farm.

Controlled Lighting

The visitors were shown flocks of layers on controlled lighting tests ("stimulighting"), which Dr. Knodt said have shown increased profits of 50¢ per bird annually. They also were told of outstanding results obtained

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CONTRACT

(Continued from page 1)

tion. The complete pelleted feed contains 35% ground corn cobs.

"The feed company is furnishing all feed except hay," said 29-year-old Courtney Siglin. "And the way the cattle are eating, it looks like they will have to gain an average of 2½ lb. per head per day to enable the feedman to come out."

The herd consists of 35 heifers and 17 steers, and until they went on the pelleted feed, they had been on grass without grain or protein since their purchase a year earlier as calves. When they started on the feeding program heifers averaged 725 lb. and the steers around 950 lb.

Heifers from Montana

The heifers, from Montana ranges, were purchased last fall at 26¢ lb. They averaged slightly less than 400 lb. The steers are from California and were bought in August, 1959, for 33¢ lb. They were slightly heavier than the heifers.

The cattle have now been on the pelleted feed rations slightly more than eight weeks. Weighed at the end of the first 44 days, they had gained an average of 105 lb. in that time—a little under the 2½ lb. per day per head. They had consumed approximately 21 tons of the complete pelleted feed ration, in addition to hay and some pasture; they are now in drylot.

The Siglins feed some 200 head of cattle annually. This lot of 52 is a special experiment. The Iowans make extensive use of grass and other roughage feeds and have three silos. They use two for silage—a mixture of corn and grain sorghum, the plants being mixed and chopped together.

The third silo is used to store high moisture corn, which was put up and fed for the first time in 1959. The two Iowa cattleman like it and state their cattle prefer it over other corn. It is augered from the silo into a crimping device before going to feed bunkers.

ADDS GRAIN BANK

ELDORA, IOWA — Work is presently underway on construction of a grain bank operation at the Crosley Farm Store here. Beecher Crosley, owner, reports that a feed grinder and mixer are being installed in the warehouse which is located at the site. Bins with capacity of 10,000 bu. will be located beside the warehouse.

Turkey Breeders To Hold 26% More Heavy Breed Hens

WASHINGTON — Owners of turkey breeder hens in 15 of the most important states expect to hold 26% more heavy breed hens at the beginning of the 1961 hatching season than at the beginning of the 1960 season, according to the Oct. 1 survey by the Crop Reporting Board.

Holdings of light breed hens are expected to be about the same as in 1960. These 15 states accounted for 81% of the breeder hens on farms Jan. 1, 1960. Compared with the 1960 season, turkey growers plan to have 46% more heavy white breed hens and 19% more bronze and other heavy.

For past years, growers' Oct. 1 intentions to hold heavy breed turkey hens, compared with estimated number on hand the following Jan. 1, were: Oct. 1, 1956, intentions 16% increase, Jan. 1, 17% increase; in 1957 intentions 4% decrease, Jan. 1, 8% decrease; in 1958 intentions 7% increase, Jan. 1, 4% increase, and 1959 intentions 2% decrease, Jan. 1, 3% decrease.

Growers of heavy white breeds in each of the five most important states indicate large increases in holdings of hens. Increases were 100% in California, 50% in Ohio and Texas, 45% in Minnesota and 25% in Wisconsin. All but five states reported increases in holdings of other heavy breed hens. Increases reported in the leading states were: California 30%, Missouri 25%, Iowa 20%, Minnesota and Oregon 15% and Texas 1%.

Two important states in the production of light breed poults, Virginia and Ohio, expect to reduce holdings of light breed hens 10 and 20% respectively. These decreases were largely offset by increases of 50% in Minnesota, 30% in Iowa and 20% in Missouri.

Turkey Breeders Intentions—1961 Hatching Season

Intentions to Hold Turkey Breeder Hens at Beginning of 1961 Season as Per Cent of Holdings a Year Earlier

State	—Heavy breeds— Heavy white %	Bronze and other heavy %	Beltsville and other light %
N. Y.	105	115	**
Pennsylvania	105	135	110
Ohio	150	100	80
Michigan	300	75	**
Wisconsin	125	100	**
Minnesota	145	115	150
Iowa	90	120	130
Missouri	110	125	120
Virginia	100	90	90
So. Carolina	**	100	**
Oklahoma	115	109	115
Texas	150	101	90
Washington	**	110	**
Oregon	**	115	95
California	200	130	30
Total 15 states	146	119	100

**Not shown to avoid disclosing individual operation.

New Chemical Nutrient Mixtures 'Triple Growth Rate' of Chicks in Illinois Tests

URBANA, ILL.—University of Illinois scientists have announced in a news report that new mixtures of chemical nutrients developed at their institution "have enabled chicks to grow three times faster than before."

Dr. H. M. Scott and Dr. B. Connor Johnson of the college of agriculture have been conducting basic research on the nutritional needs of the chick. They discovered that previous high-energy rations for chicks did not contain adequate quantities of the essential amino acids in the right proportions.

They worked out more exact requirements for each amino acid, and then made up rations with generally higher levels. They soon found that the chicks did best on a diet containing about 25% protein, not 20% as previously thought.

Presented with a near-ideal ration, the chicks responded by eating more and growing at the astonishing rate of 13 gm. a day. The previous best gain was 4 gm. What makes this growth even more surprising is that neither the Illinois researchers nor anyone else had previously managed to get chicks to grow at all on chemicals "off the shelf."

Feeding these laboratory diets may seem far removed from feeding practical poultry rations, and so it is. But Dr. Scott explains that it's the best way to find out what food constituents the chicks need, and in what proportions.

Dr. Scott and Dr. Johnson have now gone "all the way." Their next step will be to "work back" and apply the new levels of amino acids to practical poultry rations.

Here are the new amino acid requirements developed at Illinois, they are expressed as percentages of the complete ration and at this stage are only tentative. The old requirements are given first, followed by the new requirements:

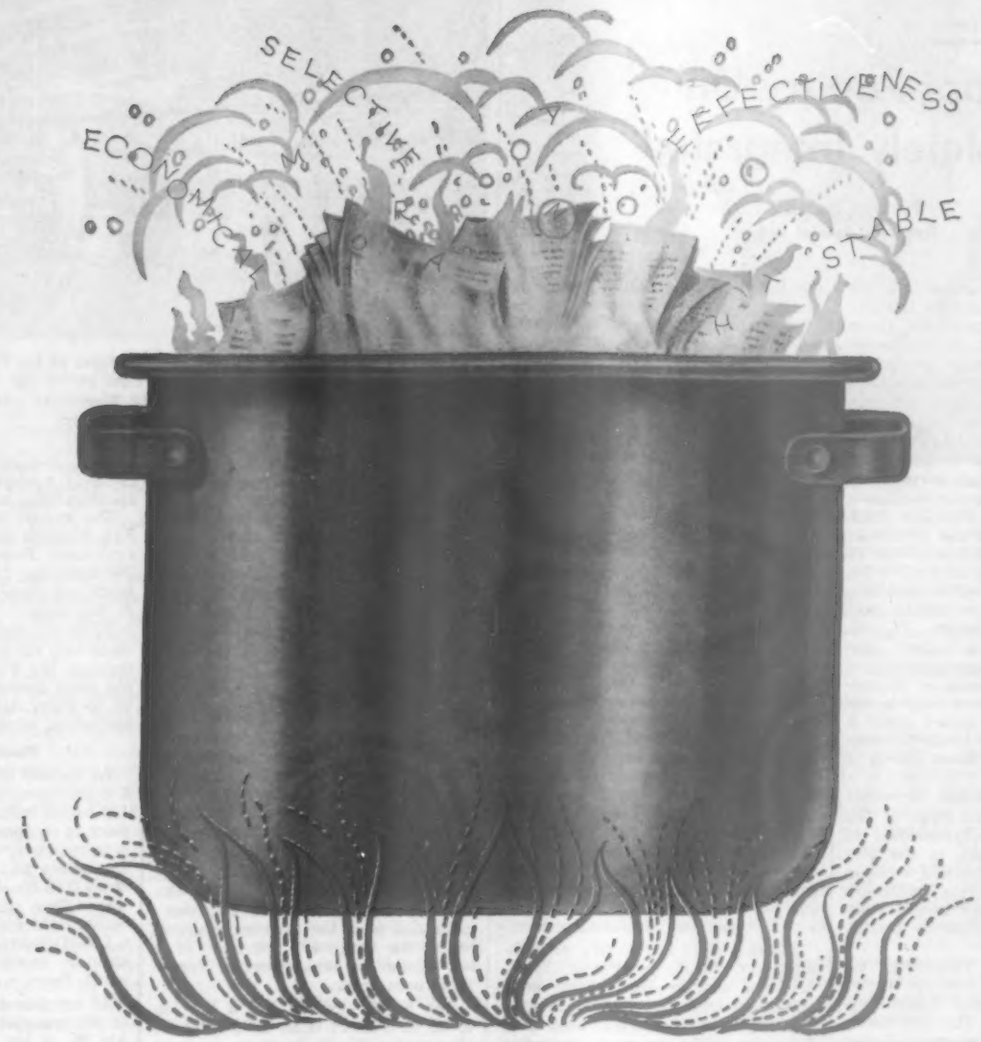
Arginine, 1.2 increased to 2.0; histidine, 0.15 increased to 0.81; lysine, 0.9 increased to 1.87; tryptophan, 0.2 increased to 0.31; phenylalanine (plus tyrosine), 1.6 increased to 2.42; methionine (plus cystine), 0.8 increased to 1.09; threonine, 0.6 increased to 1.09; leucine, 1.4 increased to 3.6; isoleucine, 0.6 increased to 1.38; valine, 0.8 increased to 1.56; glycine, 1.0 reduced to 0.94. The approximate requirement for proline is 1.08 and for glutamic acid, 13.69%.

Cotton Bag Sewing Contest Finals Set

MEMPHIS—The use of cotton feed and flour sacks as home sewing fabric will be spotlighted in finals of the 1960 Cotton Bag Sewing Contest Nov. 3 here.

More than 1,500 separate items made from plain and print bags will be on display at Memphis' Hotel Peabody during judging. The sack sewing represents the work of first-place contest winners at 50 U.S. state and regional fairs.

Two top national winners and a third-place winner of $200 will be selected during the judging. Expense-paid vacations in Hollywood will be awarded to the national sewing champion and her runner-up and, with the third prize winner, they also will share in several thousand dollars worth of merchandise gifts.



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From Coop to Crate

Mississippi Poultry Unit Is Completely Integrated

By Ray Thompson
Feedstuffs Special Writer

Mississippi's spectacular jump from 27th to 5th place in the nation's poultry production (and there are many who predict it will shortly move into 3rd place) is due to such enterprises as Forrest Farms.

This new $400,000 poultry processing plant and hatchery at Hattiesburg, Miss., began operation the last of June as a division of The Merchants Co., a Mississippi corporation owned by Mississippians, headquartered at Hattiesburg that has been doing business throughout Mississippi for 56 years and now employs about 700 people in all its operations.

With this Forrest Farms operation, The Merchants Co., a closely held stock company of which W. W. Wright of Jackson is president, controls under its own management and ownership all the phases of poultry production from the feed itself to the finished crates of ice-nested grade A government inspected broilers, ready to be shipped to the meat marts of America.

Such complete control of every step from the original eggs of the original hens, carefully selected of top notch blood strain, to the ultimate consumer explains and substantiates the Forrest Farms trademark clipped to each broiler's wing: "Pedigree—The Broiler with a Family Tree."

In addition to the Vicksburg Terminal Grain Elevator and the recently acquired Vicksburg Trans-Shippers, a barge line, The Merchants Co. has owned and operated Valley Mills in Vicksburg since 1951.

Valley Mills produces both Grade A Feed and Val-E-Pep Dog Food and maintains a complete and modern laboratory for testing all feeds produced. With a capacity of 100,000 tons, the Vicksburg mill serves dealers and direct to plantations and large farms throughout Louisiana and Mississippi, with warehouses in Hattiesburg and Vicksburg, Miss., and Ruston, La.

Feed Service Unit

All the feed used by Forrest Farms is supplied by Valley Mills to the feed service department located near the hatchery and poultry producing plant. At present this feed service department handles around 500,000 lb. of feed a week. All feed is weighed, checked and double checked to be certain that the right feed is taken to the different farms at the right time.

The farmers supplying eggs to the Forrest Farms Hatchery are spread over a wide area of south Mississippi. In addition to 40 regular employees this division now utilizes the services of 75 farmers and their families.

Currently, the egg production department has approximately 65,000 hens and pullets in the field. The eggs are picked up by farmers four times a day and stored in coolers between 60 and 65° F. They are picked up by the Forrest Farms truck twice a week and carried to the hatchery.

Much time has been spent and experimentation undertaken to arrive at a blood line that will "produce the very best of broilers hatched from as near perfect eggs as possible," officials say.

Most of the females producing Forrest Farms eggs are Nichols 108 and Martin's JBI. Other breeds are Arbor Acre, Cobbs and Pilch. The males are Vantress, Ledbrest and Peterson.

Hatchery Operation

Located near the poultry processing plant, the Forrest Farms Hatchery can now produce 90,000 baby chicks per week. When it reaches full capacity it will produce at least 250,000 baby chicks per week, according to firm officials.

To produce these chicks, four Buckeye No. 150 setters and six Buckeye No. 141 hatchers have been installed. The capacity of these setters and hatchers is 396,000 eggs. The eggs are set in the setters each Monday and Thursday. Eggs are kept in the setters for 18 days and then transferred to the hatchers for the last three days.

On the 21st day the baby chicks are removed from the hatchers and 102 are placed in each chick box. After this the chicks are taken to the chick room where they are debeaked and vaccinated. The top beak is cut off approximately one quarter inch and seared electrically. This prevents feather picking and feed wastage. The baby chick is then vaccinated for fowl pox by sticking the needle in the web of the chick's wing. It is then immunized against bronchitis and Newcastle disease by dropping vaccine either in the nose or eye. They are then ready for their trip to the farm.

PROCESSING PLANT—The eviscerating room of the Forrest Farms poultry processing plant is shown here. This view shows the conveyor system and the operators at work. The government inspectors work toward the center of the portion of the processing line shown here.

Broiler Raising

The present broiler production is about 600,000 capacity. Very shortly Forrest Farms expects to have a million birds on feed at all times. The ultimate goal is 2½ million birds, which would guarantee a weekly production of about 250,000 broilers, according to spokesmen for the firm.

Forrest Farms furnishes the farmer raising the broilers not only the baby chicks, litter disinfectant, medicants and feed, but assists the grower by the twice a week visit of a serviceman to make certain everything is in order.

The broiler grower has a big job to do in a short time, usually about nine weeks. He feeds his birds from one to four times a day. When ready for market a broiler that averages from 3-3½ lb. will have consumed between 7-9 lb. of feed.

Every water container is cleaned and disinfected at least once a day. The grower adjusts temperatures in his chicken house by either raising or lowering curtains.

Birds are delivered in coops to the unloading platform of Forrest Farms, usually about 5,500 to the truck load, the firm says.

Procedures with Growers

Both the feeder flocks and broiler flocks are owned by Forrest Farms and are placed with the growers on a contract basis.

The breeder hen contract is as follows: Before the breeder flock reaches the age of five months, the grower is paid on a basis of 1¢ per week per head. After the birds reach five months of age, the grower is paid 10¢ per head per month. In addition he receives a bonus of ½¢ doz. on all hatching eggs produced. He also receives a feed conversion bonus. A hatchability bonus is also paid, based on salable chicks.

Forrest Farms furnishes the hens and cockerels, feed, shavings, medication and egg cases, services twice a week and picks up eggs twice a week at no cost to the grower. The growers on the pullet or hen production programs are paid once each month.

The broiler contract is based on 5¢ per head on broilers sold. In addition to the 5¢, the grower is paid a feed conversion and market bonus on an incentive schedule.

Forrest Farms furnishes the baby chicks, feed and medications and the broilers are serviced a minimum of twice a week. The broiler growers are paid within seven days after broilers have been processed.

In the broiler production program, the grower is required to have a minimum of 30 hanging type feeders, 24 5-ft. trough type feeders or mechanical feeders to meet the above specifications, per 1,000 birds.

The water requirements are four 8-ft. drinkers per 1,000 birds or their equivalent. Brooder requirements are 750 birds per 1,000 capacity brooder. Birds are placed on the basis of 0.9 ft. per bird.

From the removal of the birds from their coop for their 75 minute journey through the Forrest Farms processing plant meticulous attention is given to every detail with emphasis on sanitation, company spokesmen said.

Plant Clean Up

At the end of each day's processing a clean up crew takes over for a full eight-hour shift during which every piece of equipment in the entire plant is worked over with steam, hot water, detergents and elbow grease. Walls, floors and drains get the same treatment. Then each morning 30 minutes before processing operations start a U.S. Department of Agriculture inspector carefully examines equipment, floors, walls and drains.

It requires 8-9 gal. of fresh water to process each bird. It also requires 4½ lb. of ice per broiler, manufactured in Forrest Farms' own ice plant which produces 50 tons of ice every 24 hours.

At maximum production the operation requires around 135 employees, each of whom is required when hired to present a health card. There are also several government inspectors with two on the line all the time during the processing operation.

The birds start their hour and a quarter journey on the continuous overhead conveyor by being electrically stunned and killed, bled for a definite scheduled time controlled by the movement of the conveyor and moved through the scalder.

From the scalder a battery of four feather pickers, an amazing marvel of rubber fingers, removes every vestige of feathers. Two employees called "pinners" finish the job by inspecting and making certain every trace of pin feathers is removed.

Following this comes the singeing operation. Then the birds pass through a specially constructed washer from which they are transferred to the eviscerating line — another overhead conveyor line.

USDA Inspection

Along this line are stationed operators, each with a special job. After the carcass is opened, each bird passes before the USDA inspectors who carefully examine the exterior, interior and all organs such as heart, liver and gizzard. Any bird that shows the slightest sign of infection or disease is taken off the line and sent to the inedible rendering plant.

When the completely eviscerated, cleaned and approved carcasses leave this line they go immediately into the rocker chill unit. The broilers float through a concentrated mixture of ice and water for about 35 minutes and are then rehung on a drip line. Temperatures of the carcasses at that point are 33-34°.

Then the birds travel again by

LANGUAGE NO BARRIER—Language was no barrier when it came to learning how to operate the new Daffin Mfg. Co. mobile feed mill Mr. and Mrs. Leopold Lupien, Richmond, Quebec, Canada, purchased recently in Lancaster, Pa. Neither Mr. nor Mrs. Lupien speak or understand English. They were part of a group of purchasers of the "feed-mills-on-wheels" attending a training school at the Daffin Mfg. Co.'s Lancaster factory, which included eight other non-English speaking Canadians. Andy C. Matte, right, French-speaking Daffin representative in Quebec province, immediately translated the English lectures as they were presented. The Lupiens and other French-speaking "students" instantly heard the French version via a new type of single earphone similar to those used with hearing aids and small radios. The single earphones permitted the Canadians to compare notes as the training sessions developed.

overhead conveyor to the giblet bagging table, then to the grader and on to the wing tagger which identifies each bird as a "Pedigree" broiler. They are then transferred to automatic sizers, which electronically separate the broilers into seven different weight classifications from 1½-3½ lb.

At this point the packing operation begins—from 20-30 broilers packed in each crate depending on their size. After weighing, approximately 30 lb. of crushed ice is added to the crate to protect the freshness. Next a machine automatically closes and straps the crate and it is moved into the holding cooler, preparatory to loading on a truck for its final destination.

The processing plant, managed by Gordon Hicks, will produce up to 4,800 dressed broilers an hour.

Pedigree Broilers are marketed in the entire state of Mississippi, with the exception of the northern area, through The Merchants Co.'s five branch warehouses at Hattiesburg, Jackson, Vicksburg and Gulfport, Miss., and Bogalusa, La. This local market takes the bulk of the 1½-2½ lb. broilers.

Refrigerated trucks carry most of the 2½-3½ lb. broilers to distributors and chain stores in key cities of California, Utah, Michigan, Illinois, Missouri and Louisiana.

Already, "Pedigree Broilers"—produced from eggs from Forrest Farms' own flocks, hatched in its own hatchery, raised by farmers under its supervision and processed in its own modern plant—are establishing a new trademark throughout a large segment of the nation, Forrest Farms officials say.

NUTRITION SCHOOL—Ultra-Life Laboratories, Inc., East St. Louis, Ill., recently held a nutrition school at Hudson, Wis. Shown above is a group of men who attended the meeting. In the front row, left to right, are: Harold Aamodt, Rice Lake, Wis.; Marlyn Bottolfson, Amery, Wis.; William Costello, Chippewa Falls, Wis; H. D. McFarland, St. Louis, Mo.; Austin Windsor; George Honea; Melvin Albrecht, Holcombe, Wis., and Lester Fruit, Rusk, Wis. In the center row, left to right, are: John Langer, Howard Lake, Minn.; Al Gutzke, Waverly, Minn.; Del Witt, Mankato, Minn.; Bert Shepperd, Howard Lake, Minn.; Myron Smith, Waverly, Minn.; Ted Thurston, LaPorte, Ind.; Lester Bowen, Curtiss, Wis.; Don Westphal, Howard Lake, Minn.; Frank Hellman, Almena, Wis., and C. A. Hagen. In the back row are: Selmer Lewis, Dallas, Wis.; Ed Vier, Hammond, Wis.; George Mlenjnek, Rice Lake, Wis.; Charles Hockert, Ridgeland, Wis.; Norman Hong, Barron, Wis.; Ivan Gifford, Cameron, Wis.; Heron Van Gorden, Neillsville, Wis.; Wilmer Hop, Baldwin, Wis.; Beryl Munson, Howard Lake, Minn.; Edgar Bradish, Spencer, Wis.; Leroy Larsen, Baldwin, Wis.; Dallas Waalen, Nye, Wis., and Herb Gessel, Curtiss, Wis.

Pfizer Offers Awards For Meat Judging

CHICAGO—The agricultural division of Chas. Pfizer & Co., Inc., will offer cash awards of $1,750 for the top three ranking teams in the International Live Stock Exposition's Intercollegiate Meat Judging Contest, according to announcement by the firm.

This is the fourth time the division has offered the prizes. Each of the winning teams accepts the award on behalf of the respective land grant institution it represents. The awards go to finance appropriate meats research activities at these schools, the announcement said.

Twenty-five four-man teams are expected to compete in this 31st annual event.

Last year, a record-breaking 26 colleges had teams in competition. Oklahoma State University won the first place award of $1,000. Texas A&M College won the $500 second prize and North Dakota Agricultural College placed third, receiving $250.

The 1960 awards will be presented on behalf of the 111-year-old drug and chemical company Nov. 30. At the same presentation ceremony, the first place team will take a one-year possession of a rotating challenge trophy, the meat industry "Oscar," provided annually by the Live Stock and Meat Board, sponsor of the contest.

J. Jerome Thompson, Pfizer vice president and general manager of the firm's agricultural division, said his company's donorship is in recognition of the continuing contribution this contest makes to the training of outstanding students in animal agriculture.

In praising the participants, Mr. Thompson added, "Without the abilities provided by college trained men and women who nourish American agriculture, we cannot surge forward with the renewed vigor and technological force needed to insure progress and growth throughout our great industry."

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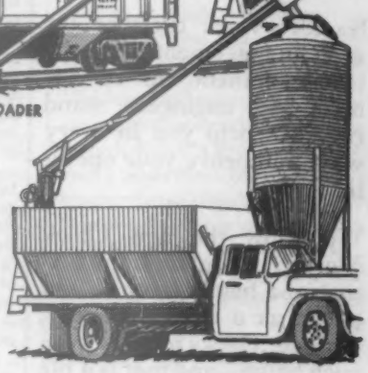

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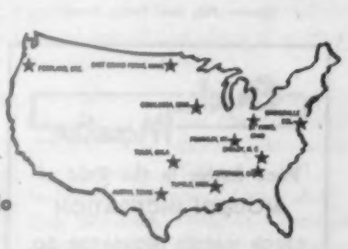

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All-Concentrate Rations to Fatten Cattle Discussed at Feeders Day at Montana

By DR. O. O. THOMAS
Montana State College

BOZEMAN, MONT. — Fattening cattle on all-concentrate rations attracted considerable interest at the fifth annual Cattle Feeders' Day held at Montana State College Agricultural Experiment Station. Cattle feeders also heard the results of various wintering tests and visited a new feedlot which has just been constructed at the experiment station.

Montana produces high quality cattle and a surplus of barley. In some areas, there is a scarcity of hay. Interest in the all-barley or high concentrate feeding has been increasing.

An all-barley fattening test was conducted to determine the efficiency of this method of feeding. Dynafac and Agrozyme were added to determine their value in this high-concentrate ration. Four lots of yearling Hereford steers were used in the experiment. They were started on grass hay, steam-rolled barley and 2 lb. of a 20% protein supplement. The barley was gradually increased and hay decreased until no hay was fed after the 18th day.

After 112 days, the cattle are consuming about 15 lb. of steam-rolled barley and 2 lb. of 20% supplement. Although the experiment has not been concluded, early gains for these cattle are about 3 lb. per day. At the present time, the cattle fed dynafac are gaining slightly more than the controls and more than those fed Agrozyme or a combination of Agrozyme and dynafac. Carcass data will be obtained when these cattle are slaughtered.

In a test with heifers, the all-barley ration is being self-fed. To date, these cattle have also gained about 3 lb. per day. The addition of dynafac has increased gains slightly. A final shrunk weight will probably decrease the daily gains.

New Facilities

New facilities have been constructed which will aid in the cattle fattening research program at Montana State College. To date, eight pens have been constructed together with a loading chute, squeeze and scale facilities. These eight pens are approximately 30 by 30 ft. and are divided by steel gates. These gates can be opened to allow a clean sweep through all lots for cleaning. Hot asphaltic concrete was used for the base in these lots. An 8-ft. windbreak is used for shelter. An experiment has been started at this new nutrition center involving levels of roughage with steam and dry-rolled barley.

A cooperative test using safflower to replace beet pulp in a fattening ration was conducted with a rancher. Preliminary results indicate that safflower can replace 6-12% beet pulp in a fattening ration. Heifers fed an all-barley ration supplemented with a safflower pellet gained approximately 2 lb. per head per day over a 224-day period.

Safflower production is increasing in Montana, and considerable quantities of unhulled safflower meal are available for feeding. Wintering tests were conducted at the north Montana branch station with cows and calves testing a safflower pellet against a commercial-type 20% protein pellet. Slightly greater gains were made by the cows and calves fed the 20% protein pellet as compared with the safflower pellet. These are preliminary results and the experiment will be conducted another two years.

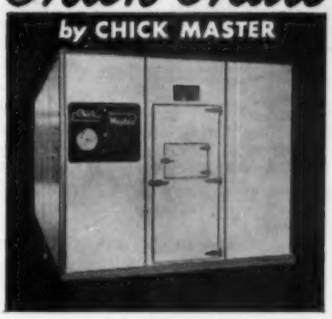
Wintering tests included the use of tranquilizers and various antibiotics. These tests were conducted in cooperation with the Climbing Arrow Ranch, Three Forks, Mont. Approximately 80 head of heifers were used in each lot and were managed under commercial conditions. Various levels of zinc bacitracin were used, with greater gains being made by heifers fed 80 mg. of zinc bacitracin a day. In another test, Aureomycin was used, and this produced a greater gain when compared to the controls. In a similar test, the addition of Terramycin and a combination of Terramycin plus Tran-Q increased gains.

New products, not on the market, are 3' 3' diallyldiethylstilbestrol and diallylhexestrol. These products were tested in an implant form at various levels. Twelve head of calves were used for each treatment and all calves were fed together in one lot. Results ranged from no response up to 26% increase. The 12 mg. of diallylstilbestrol gave the greatest increase in gain. Various levels of diallyldiethylstilbestrol were also used in a wintering test with heifers; levels as high as 360 mg. per day produced no adverse effects. However, gains were about the same for these heifers as those fed a 20 mg. level. This 20 mg. level produced about 0.1 lb. greater gain than that made by control heifers.

Supplementing calves fed on winter range was subject of a test conducted in cooperation with the U.S. range station at Miles City, Mont. Fifty-six calves, divided into eight groups, were grazed together and individually fed every day either ⅛, 1 or 2 lb. of an 18% protein pellet or ¼, ½ or 1 lb. of a 36% protein pellet. A control group of calves received only range grass or hay in severe weather when all calves were fed hay. The greatest gains were made by calves fed 2 lb. of the 18% protein supplement. This experiment will be repeated.

Cobalt bullets were used in two short-time experiments and produced only slightly greater gains in yearling

Chick Chats
by CHICK MASTER



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steers grazed on native range. In one test of only 56 days, calves given a cobalt bullet gained 3 lb. more than the controls, whereas calves implanted with 12 mg. of stilbestrol gained 15 lb. more. Both tests were of short duration and further tests in various areas of the state are needed to determine the need for this type of supplementation.

At the conclusion of the tour, E. P. Orcutt, livestock extension specialist, commented on grades of the steers being fed, and Eric Wilson, extension engineering specialist, commented on the feedlot facilities and the building of the feedlots at Montana State College.

Gets Clupak License

NEW YORK — G. E. Amerman, president of Clupak, Inc., has just disclosed that the company has granted a license to The Sandy Hill Iron & Brass Works, Hudson Falls, N.Y., to make the machinery for producing Clupak extensible paper. J. Walter Juckett, president of Sandy Hill, signed the agreement for his company.

This is the second American company licensed by Clupak to produce such machinery. The Beloit Iron Works of Wisconsin has already completed 13 extensible paper units and is working on two others.

In Japan, Mitsubishi Heavy Industries Ltd., another Clupak, Inc., machinery licensee, expects to complete shortly three extensible units.

DIRECTORS ELECTED

SHERIDAN, ORE.—The Sheridan Grain Co. has elected new directors to serve for two year terms. They are Glen Grauer, Sheridan, and Eldon Fendall, Willamina, who succeed Clay Sterns and Pearl Blackwell. Walter Werth of Grand Ronde and John Rogers of Sheridan were reelected for two year terms.

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Wisconsin's Turkey Producers Concerned Over Condemnations

MADISON, WIS.—Wisconsin turkey growers are reported greatly concerned over a tightening of federal inspection standards at state processing plants.

Some growers reportedly have complained to farm and poultry organizations and to the University of Wisconsin's department of poultry husbandry about inspections that they said were resulting in a high bird condemnation rate. Wisconsin produces about four million turkeys annually, with the pocessing peak coming about Nov. 1.

John B. Hayes, University of Wisconsin, said there had been no change in the federal regulations, but there might be a more strict interpretation of the rules.

The basis for condemnations seemed to be defects in the air sacs of the turkeys, removed during dressing. The usual complaint reportedly was "cloudy" air sacs, with inspectors asserting that the sacs can harbor or transmit disease germs.

Dr. Roger E. Dodge of the Chicago regional office of the U.S. Department of Agriculture was quoted as stating that the air sac problem was "coast to coast" and that it has increased in the last year or so. He asserted that there was no mystery about the situation, insisting that it "goes back to management on the farm" for solution.

Predicts High Egg Prices for 6 Months

ITHACA, N.Y.—A specialist at the New York State College of Agriculture has predicted good news for poultrymen: "Egg prices are up to stay for about another six months."

Cornell Prof. Jonathan Tobey explained that prices for large whites have been hovering around 50¢ or better for nine weeks now. "That's 35% above the average price for these eggs a year ago," he said. Prices for medium and small eggs are also up—some 70% above those of last year.

Reason for the price increase: "As a result of the low egg prices last year, the number of laying hens on hand has decreased to its lowest level since 1937. The number of eggs now being produced is about 3% under last year's average production," the agricultural economist reported.

All is not rosy for the poultry farmer, however, Prof. Tobey warned. While these high prices are long overdue and needed, they can stimulate over-production and over-optimism.

Prof. Tobey emphasized that now is not the time to step up production of baby chicks or jump back into the poultry business. "Those persons who do might find that as soon as the new hens start laying, prices will take a radical downswing. Specialists can't predict exactly when prices will start sliding down—but, in egg production, as in other phases of agriculture, profits are often followed by over-production and low returns," he said.

New Mill Operating

MAUSTON, WIS.—A mill capable of automatically mixing two or more of 12 varieties of feeds at the flip of levers and switches was put into operation recently in a seven-story building of the Mauston Farmers Cooperative. The building, feed bins and machinery cost nearly $120,000.

Arthur Walter, president, said the cooperative would be able to purchase larger quantities of feed at lower cost and mix them faster and at less expense than before.

The cooperative, with some 1,500 members, draws customers from up to 40 miles from Mauston.

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Wondering if aeration is worth the cost? Then read this. Aerated elevators all over the country are reporting grain temperatures as low as 40° at the end of summer and, as a result, stored grain insects have been less of a problem this year than ever before.

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OFFICERS ELECTED—Virginia Poultry Federation officers elected at the annual convention are shown above. From the left, they are: W. D. Moore, Jr., Richmond, vice president; George Heitz, Broadway, president, and R. H. Strickler, Harrisonburg, secretary-treasurer.

Says Turkey Growers Need to Consider Consumer Desires

ROANOKE, VA.—Virginia turkey growers were warned at the recent Virginia State Poultry Federation convention, held in Roanoke, that they are no longer in a producers' market and should be concerned with what the consumer thinks instead of concentrating wholly on production problems.

This advice came from C. N. Thurnbeck, president of the National Turkey Federation. Other speakers at the convention discussed such topics as the need for environmental control during brooder periods, the qualities of a successful salesman and comments on the proposed farm program being offered by the United States presidential candidates.

"It is only natural to be most concerned about the problems that are most apparent to us," Mr. Thurnbeck said. "Most of us grew up in an era when the challenge has been production. But we are now in a consumer market, we must gear our entire thinking to the consumer.

"The turkey industry has terrific competition for the consumers' attention and money. Many new food products are offered on the market almost daily. The consumer is beseiged and tempted to use these new products everywhere she turns. As a result, she has become very selective and critical in her food buying."

Mr. Thurnbeck cautioned the turkey industry on selling birds at immature weights, thus causing consumer resistance. This is particularly important in fryer-roaster sizes when turkeys are sold before they mature, he pointed out.

"We must do everything possible to give the consumer exactly what she wants. It must be of the proper unit size for the particular occasion. It must be completely oven and table ready. It must be attractively packaged and displayed—and above all it must be of the highest possible quality."

Environment

"Because of the low cost of poultry houses, the biggest problem from an environmental control standpoint is the lack of heat," said William A. Junnila, agricultural engineer, U.S. Department of Agriculture.

Supplemental heat is provided during the brooding period, he said, but in an effort to reduce expenses many growers shut off some of the brooders as soon as the chickens are fully feathered.

Mr. Junnila noted that hot air systems seem to be gaining in popularity. To be very satisfactory, he reported, they should be closed systems where the air does not spill out into the pens but is returned to the furnace within pipes. In an open system, the air can be drawn from the outside or recirculated from the pen back through the furnace.

"One beneficial effect of exchange of air is the dilution of all the contaminants within the poultry house," he stated.

"The high incidence of respiratory diseases in colder weather applies to chickens the same as humans. This shows up in the poultry processing plant as a loss to the producer. Test results show a higher rate of disease among a group of chickens exposed to a low air exchange as opposed to birds to a high air exchange."

Successful Selling

"One noticeable quality of a successful salesman in his attitude," said Dr. Emol A. Fails, North Carolina State College.

"How does a salesman develop a positive philosophy of life? We live, unfortunately, in an age of negativeness. So many of us think in negative terms. But the salesman who thinks this way might just as well stay at home. The salesman today must develop a positive attitude."

Dr. Fails pointed out that two additional qualities needed in sales work are enthusiasm and sincerity. "There is a statistical correlation between the quality of enthusiasm and the listener's opinion of the knowledge and competence of the person speaking."

Rep. Burr P. Harrison (D., Va.) told the Virginia poultrymen that the farm program of neither presidential candidate offered any real promise of economic stability for them or other farmers.

Both Nixon and Kennedy plans are of a piece with past and present approaches to farm difficulties in failing to "equalize the competitive position of the farmer with other elements of the national economy," Mr. Harrison said.

FEED STORE DESTROYED

EVANSVILLE, IND.—Fire has destroyed a feed store owned by Fred Buente. Damage has been estimated at $40-50,000 in the blaze which destroyed the one story frame building and its contents.

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Microingredient Problems in Feed

By Marvin E. Rohlf
Golden Sun Milling Co.
Estherville, Iowa

It is important to everyone involved in the manufacture, sale, and feeding of manufactured feeds that each microingredient be present in the feed at the guaranteed or calculated level at the time of use. The stability problem which feed manufacturers encounter with microingredients in feeds largely relates as to whether or not the microingredient is sensitive to such environmental conditions as moisture, heat, pH, oxidizing and reducing agents and mineral catalysts. By all means don't forget that stability of microingredients is also directly related to the shelf life of the feed. In other words, feed doesn't improve with age.

There are certain microingredients that appear to be entirely stable in premixes, mash feeds and pelleted feeds under all normal conditions of use. These nutrients include riboflavin, niacin, choline chloride, streptomycin, arsanilic acid, 3-nitro 4-hydroxyphenylarsonic acid, methionine, stilbestrol sulfaquinoxaline, vitamin E acetate and the various minerals used. Certain other nutrients which are sensitive to the environmental conditions that feeds may be produced or stored under and that are under discussion are: vitamin A, vitamin D, menadione, procaine penicillin, calcium pantothenate, vitamin B_{12} and menadione sodium bisulfite. The stability of such ingredients cannot be simply described because of the following reasons:

(1) There are no clear cut industry standards for some microingredients and products sold under the general name vary markedly in stability.

(2) Feeds will vary in destructive effects on microingredients for example, the moisture and mineral levels.

(3) The pelleting of feed is not a standardized operation due to formula differences and operator techniques.

To protect feed manufacturers against the loss of an effective level of a certain nutrient, we have available for purchase stabilized forms of most of the above nutrients. There is, however, a variation in the stability of a certain vitamin depending upon the source.

Stability Problem

If a particular feed manufacturer finds that he is faced with a stability problem with a certain nutrient, there are several courses of action available. The most important of these is to find out where the problem lies and try to correct it in one or more of the following ways:

(1) By adding an excess quantity or overage of the microingredient involved.

(2) The use of a more stabilized form of microingredient.

(3) The use of antioxidants such as BHA, BHT, or Santoquin if not already used.

(4) Revision in feed production scheduled to minimize the time elapsed between production and consumption.

In a recent survey made by Mr. Wornick ('59), he reported that approximately 55% of the total U.S. feed volume and 78% of the central states feed volume are pelleted or crumbled. In spite of the fact that a large proportion of the American feed is pelleted, there is still a lack of information as to how much pelleting affects the stability of certain microingredients. One factor that seems to be quite important in this regard is pelleting temperature. Feed manufacturers try to improve stability of problem nutrients in the following ways:

(1) Formulate feeds to make pelleting easier; for example, by adding a small amount of fat.

(2) Use the correct die size and thickness.

(3) Keep feed temperature down by not using an excess of steam.

(4) Keep production rate high by reducing the time the feed is in the conditioning chamber as well as in the die.

(5) Regulate particle size to finest practical grind so as to speed up pelleting.

(6) Be sure the rolls in the pellet mill die are set correctly so as to reduce friction developed in the die.

(7) Reduce time that feed is in the die.

(8) Make the pellets no harder than necessary.

Factors of Pelleting

There are many factors of pelleting that the pellet mill operator and feed manufacturer can regulate so as to reduce the temperature of the pellets not only while they are in the die of the pellet mill, which is most important, but also the temperature of the pellets from the time they leave the die until they are cooled. Too high a temperature during pelleting could melt vegetable and animal fats, stabilized wax, fat or gelatin coatings of vitamins and may even melt some of the microingredients themselves. Losses may occur during pelleting due to too high a temperature for too long a time as a result of the pelleting operation. However, these losses when they are recognized are seldom significant when the mills are operated in the correct manner as compared to the advantages of pelleting.

The stability of a certain formula is affected by the quality of the ingredients going into the formula. As related to the stability of nutrients in the ration, feed manufacturers must and should remember that the quality of the ingredients going into the mixed feed is as fully important as the feed formula itself.

In this regard it is important that the purchasing agent carefully watch the moisture levels of the feed ingredients he purchases. Richardson of Texas A&M (1960) has found that one feeding stuff may heat rapidly, while another with a higher moisture content may be safe. The various feed ingredients which have been tested at the Texas station as related to feed spoilage in mixed feeds reveal that the critical level for these ingredients ranges from 8.7% for bonemeal to 17% for distillers dried grains. The presence of a slight excess of moisture in the feed will allow the growth of mold. Most of us realize that the bulk of the ingredients purchased on the open market may not be susceptible to heating. These same ingredients usually contain enough moisture so that it is almost impossible to prepare mixed feeds containing semi-solid ingredients such as fish solubles or feeding molasses which are high in moisture without the mixture being highly susceptible to heating. Because of this one cannot go much beyond the 2½% and certainly the 5% range when adding these high moisture ingredients.

At the Farm Level

It is very possible that the supplements you sell may be blamed for lack of certain vitamin stability since your customer is experiencing poor feed efficiency and slow growth or both. However, the true cause of this condition may not be the stability of vitamins in your supplement but inadequacies of the grain or roughage being fed. The feeding of moldy corn to growing-finishing pigs is a typical example. Molds that commonly attack the corn kernel, except perhaps Gibberella, are apparently not poisonous to swine. They do, however, consume the substance of the corn and because of this reduce in proportion to the extent of mold damage the amount of nutrients a given lot of corn contains.

Fairbanks and co-workers (1940) found that shelled corn that had been extensively damaged in storage by Aspergillus nigger and various species of Penicillium, both common molds, proved to be worth about 68% as much as sound corn for growing-finishing pigs. No digestive disturbances were observed in the pigs fed the moldy corn. Similarly, Robinson (1944) reported a value of about 80% that of sound corn for a batch of moldy corn he fed fattening hogs.

Many livestock producers wonder about the feed value of corn that has been stored for a number of years. Because of the increased amount of corn stored during recent years, some grain, in government and other storage, attains an age of several years before it is used.

The U.S. Department of Agriculture reported in 1955 on tests where nine samples of stored shelled corn ranging from one to six years of age were used in rat feeding experiments to estimate possible deterioration of nutritive value. Experimental work indicated a decrease in protein efficiency from 2.7-1.81 gain in grams per gram of protein fed in corn from one location after five year storage. The corn tested was not from the same year production. Other samples obtained from a different location indicated no significant loss in protein even after six years of storage. When the corn was fed as a source of energy in mixed lots, no loss in feeding value was found in samples stored for as long as six years.

Value of Dried Corn

Due to increased practice of early harvesting of corn followed by artificial drying many livestock producers are also concerned about the feeding value of corn that has been artificially dried.

An experiment conducted by USDA in which researchers followed varied drying temperatures, heating time, air flow rate and moisture content as related to the nutritive value of field shelled corn, indicated that drying treatment caused no significant loss of carotene in the corn samples. Drying 28% moisture corn with unheated air at an air flow rate of 0.85 of a CFM/bu. resulted in mold development, high fat acidity values and indications of losses in protein nutritive value. Corn with initial moisture levels up to 32% dried for 1½ hours or less with air of approximately 240° F. was undamaged in drying. Temperatures above 280° F. caused marked brown discoloration,

EDITOR'S NOTE: This article is from a talk presented by Marvin E. Rohlf, nutritionist for Golden Sun Milling Co., Estherville, Iowa, at the Iowa Feed Conference held on the campus of Iowa State University, Ames, Iowa. That meeting was held under sponsorship of the animal husbandry and poultry husbandry departments of the university in cooperation with Western Grain & Feed Assn., Feed Institute and Midwest Feed Manufacturers Assn.

BULK BODY DELIVERY—Nine Dodgen all-purpose bulk-bag feed bodies were delivered recently to the Quaker Oats Co. at Humboldt, Iowa. The order called for 10 bodies, but the first one was picked up two days earlier by an Iowa Quaker Oats agent. Dodgen Industries, Humboldt, manufactured and installed these bodies on 10 new trucks provided by Quaker Oats. John Dodgen, president of Dodgen Industries, held a luncheon for the agents, district representatives and other Quaker Oats officials who attended the delivery ceremonies.

COLLEGE MILL—A new feed mill is going up at Texas A&M College, College Station, Texas. It is located just north of the main campus and adjacent to the hog feeding center to take care of the needs of the animal husbandry department of the college. One of the most complete campus mills, the new plant will have a capacity of 4-5 tons per hour. Eleven storage bins and eight working bins will be installed. Machinery will include a hammer mill, roller mill, horizontal mixer and small pellet mill. Housed in a new steel clad building, the plant is expected to be ready for operation Jan. 1. Riza Mfg. Co., Cleburne, Texas, designed the plant and is building it.

WAREHOUSE ADDITION—This new addition is nearing completion at the East St. Louis, Ill., warehouse of the Master Feed & Seed Co., distributor for McMillen Feed Mills, division of Central Soya Co. "The 70-ft. extension will provide an additional 5,250 sq. ft. of floor space and enable the warehouse to expand its business in line with demand in the East St. Louis area," according to Robert Christiansen, warehouse manager. Upon completion of the building project, a bulk handling setup will be installed at the warehouse to provide flexible bulk service to area dealers.

parched corn odor and losses in protein nutritive values.

In a very recent test at the University of Illinois by Jensen and workers (1960), a study was made on the nutritive value of corn dried at 140°, 180°, or 220° F. fed to swine at different ages. The initial field moisture of the corn was 21%.

Drying of the corn was completed with a 375-bu. capacity portable batch drier. When gain and feed efficiency were used as criteria, average performances on different corns were very similar within each experiment. In a five week five day test, 50-lb. pigs showed a very slight preference for 220° F. shelled corn. When corn was roller ground, the choice was definitely and consistently for the 140° F. corn. Vitamin assays showed no apparent effect of temperature on content of riboflavin, niacin and carotene. However, the pantothenic acid value was lower for the corn dried at 220° F. as compared to that dried at 140° F. (2.31 mg. per pound versus 2.58).

Vitamin A Deficiency

What may seem to be a vitamin A deficiency in cattle (also in bred sows and gilts) being fed corn silage or allowed to graze on pasture may be nitrate poisoning. Symptoms of nitrate poisoning in cattle may be sore feet, lameness, digestive upsets and in brood cows there is a situation where they abort or produce dead full-term calves.

The University of Illinois scientist Dr. E. B. Earley ('60), reported this may be more of a problem since farmers are planting a high population of corn per acre in addition to using larger amounts of nitrate and nitrogen fertilizers. Due to the above facts one corn plant tends to shade another which appears to be related to an enzyme in corn called nitrate reductase. This enzyme has a key role in protein production and it tends to be less active when there is a shortage of light. Nitrate reductase is an enzyme that acts as a valve regulating the reduction of nitrate into protein and if this enzyme is sluggish or overloaded nitrate accumulation in the plant increases the nitrate threat to livestock.

Dr. G. B. Garner ('59), University of Missouri, has reported that species of plant found which accumulated nitrate were ranked in the order of decreasing potential corn, sudan, small grains, rape and fescue, all of which are found to be potentially high accumulators. Alfalfa, ladino, milo and sorghum are moderate accumulators with red clover and brome grass consistently low.

Dr. Garner also found that levels of nitrate accumulation as related to timothy blue grass, fescue and orchard grass were much lower following fertilization with a complete fertilizer as compared to fertilization with just nitrogen. The Merck Veterinary Manual indicates that some plants acquire the ability to accumulate nitrate after they have been sprayed with sublethal doses of so called plant hormones (2,4-D, 2,4,5-T) and MCP.

With the low level of nitrate which may be in some silage it may be possible that feeders and feed men have observed what seems to be a vitamin A deficiency. It may be that when excess nitrate gets into the ruminant there is during the digestive process some interference with the conversion of carotene to vitamin A causing apparent vitamin A deficiency. Because of this possibility, particularly in the ruminant field, don't be too quick to blame your nutritionist for the lack of vitamin A in the supplement you sell.

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TO BUILD MILL

LINDEN, WIS.—Construction of a new feed mill here is expected to begin shortly, according to Bud Faull, who will operate the unit.

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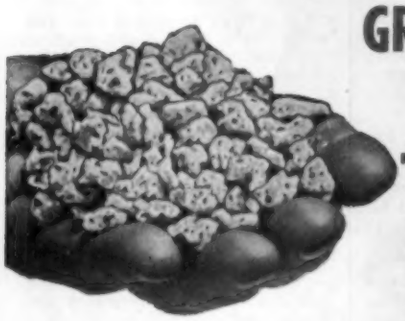

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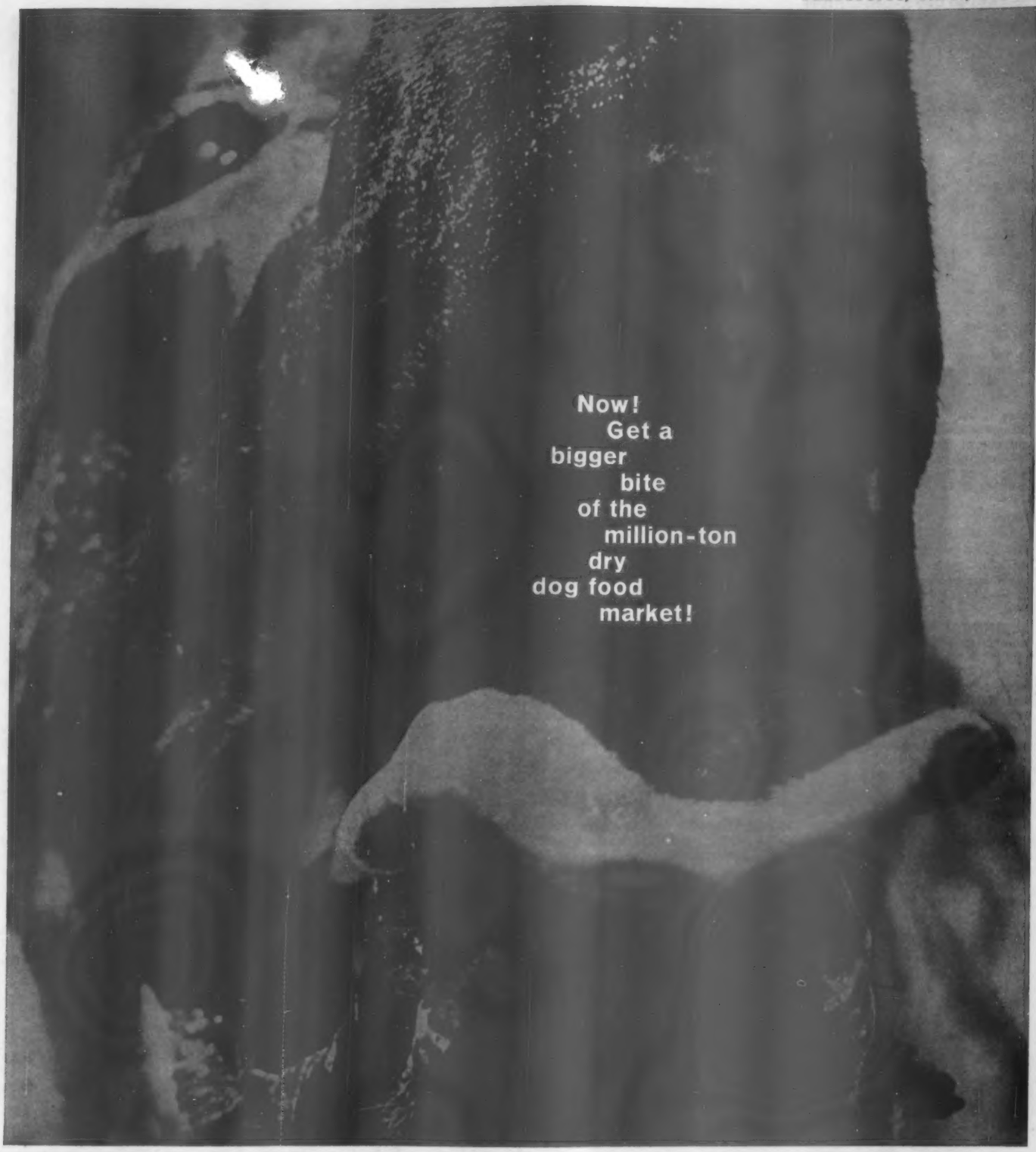

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INDUSTRIAL ENGINEERING ANALYSIS OF CUSTOM FEED MILL ACTIVITIES

By Victor M. Tamashunas
Iowa State University

In this study, a certain number of mills, representative both as to volume and type of service offered, were selected. These mills were then visited.

During the visit, the management was interviewed, cost and production records were analyzed, a sketch was made of the layout and facilities, and the time study was made of certain operations.

Numerous forms were designed to facilitate the gathering of this data. Approximately one-half to one day was spent at each mill by the persons conducting the study. Seven of the thirty-seven mills visited were checked for the purposes of a more extensive study by means of work sampling techniques. The work sampling study was conducted for a period of five to six days at each of the seven installations by one person.

Following the mill visitations and gathering of data, an attempt was made to simulate a model mill or mills that would be representative for all 150 in the cooperative association. This hypothetical model would not represent any of the 37 mills actually visited, but would be a composite of all in the cooperative. Tons through the mixer per day of both custom and formula mixing was the criterion as to size. The following mills were visited with the resulting model construction:

Tons of feed mixed per day	Model	Number of mills studied
¼ ton to 9¾ ton	5 ton	8
10 ton to 19¾ ton	15 ton	11
20 ton to 29¾ ton	25 ton	16
30 ton and over	....	2
		37

The number of mills in the 30 ton category was too small to obtain representative data, and no model was constructed for this volume of operation.

ANNUAL COSTS OF OPERATION—The custom feed mill operation is usually performed along with other activities. Usually the buying and selling of grain together with its storage is to be found. In addition to the grain elevator business, other farmer services are almost always offered in conjunction with the custom mill. These would include seed cleaning, livestock handling, and sale of lumber, hardware, coal, petroleum and fertilizer, to mention the most important.

This multiplicity of services and product lines, together with usual sharing of direct labor and overhead charges, presents difficulty in the evaluation of a single service. This is further accentuated by the lack of a cost accounting system in custom mill operation. This situation necessitated considerable analysis and study to properly determine those costs pertaining to the feed business. The annual costs listed in Table 1 are those allocated to feed only.

STANDARD COSTS OF OPERATION—The next step was to determine the standard costs of operation for each activity the mill performed. The standard costs of operation are presented in the Tables 2, 3 and 4 for the three model mills.

How the standard costs presented in Tables 2, 3 and 4 may be used is in the following calculation.

Cost to grind, mix and deliver bulk a ton of custom feed for a 5-ton mill:

Table	Work center	Cost per ton	Factor	Cost per ton of feed
2, 1. a.	Receive grain	$0.660	1600/2000	$0.528
2, 1. c.	Receive sacked ingredients	0.851	400/2000	0.170
2, 2. a.	Grind grain	2.084	1600/2000	1.667
2, 3. b.	Custom mix	1.649	2000/2000	1.649
2, 4. a.	Load bulk	0.350	2000/2000	0.350
2, 7. a.	Deliver bulk	3.837	2000/2000	3.837
				$8.201

A representative ton of custom feed was found to contain 1,600 lb. of grain and 400 lb. of additive. For the 5-ton model, all the additive is received sacked. Of the 400 lb. of additive, 250 lb. is formula supplement and the remainder is protein, mineral, antibiotic and similar additives.[2]

ANALYSIS OF ACTIVITIES—The analysis of those areas especially pertinent to operators of custom milling establishments is divided into five parts: (A) Calculation of manufacturing costs, service charges and profit margins, (B) break-even analysis, (C) capacity analysis, (D) bulk vs. bagged receiving of ingredients, and (E) bulk vs. bagged handling of finished product.

A. Calculation of Manufacturing Costs, Service Charges, and Profit Margins—By this analysis, the claims of custom mill managers that feed profits can best be maximized by setting custom charges at a break-even point and realizing the profit on the sale of formula feed are substantiated or refuted.

The summary of these findings is as follows:

Model mill	Annual loss on custom charges	Annual gain on formula feed sales	Annual net gain
5 ton	$3,024	$10,549	$ 7,525
15 ton	1,083	21,264	20,181
25 ton	1,355	39,179	37,824

B. Break-even Analysis—In this analysis custom charges alone are first considered as income, and then custom charges together with formula feed margin are treated as the total income.

The study emphasizes that on custom charges alone the mills would operate at a loss. Also, it indicates the over-all break-even points for the enterprise are fairly low, notwithstanding the heavy fixed costs required. This is primarily due to the attractive margin on formula feed.

The break-even point tends to be lower as the model mill increases in scale. If the break-even points are plotted against size of operation, the curve tends toward a parabolic type.

Model mill	Break-even point	Per cent capacity
5 ton	3.00 ton	60.0%
15 ton	6.25 ton	41.7%
25 ton	9.25 ton	37.0%

In the Agricultural Marketing Service report on custom milling, a break-even point of 80% for custom services and 47% for over-all activity is indicated.[4] That study was essentially for a 10-ton model custom feed mill. A very good correlation between the two studies was found for the break-even point for the enterprise as a whole. The point at 47% would lie on the curve determined by plotting points for the 5, 15 and 25-ton models as above.

C. Capacity Analysis—The previous material has indicated the model mills were established on the basis of actual volume handled rather than capacity considerations. It is quite possible the 5-ton or 15-ton model mill is capable of doing a 25-ton business. Factors that influence the volume of activity other than equipment size are the competence of the management, size of trade territory, local feeding practices, extent of competition, etc. For that reason the break-even points were referred to as percent of established volume handled rather than a percent of capacity. Notwithstanding the above, the size and complexity of equipment generally increased with the volume of activity, and that condition was reflected in model design.

This part analyzes the model mills from a capacity and utilization viewpoint on the basic pieces of equipment, e.g., the processing, mixing and pelleting work centers. It also assumes a mill operating time of 9½ hours per day, six days per week. The mills generally devote four hours on Saturday afternoon to maintenance, cleaning and repair. Also, thirty minutes per day is allowed for rest and personal needs. Since practice indicates the basic equipment is non-operative during these periods, the full allowance time should be used. These calculations, if averaged on a daily basis, show an effective daily production time of 500 minutes.

The material concerning capacity and utilization can be summarized as follows:

	Model mill					
	5 ton		15 ton		25 ton	
Equipment	Cap. tons	Utilz. %	Cap. tons	Utilz. %	Cap. tons	Utilz. %
1. Processing						
a. Grinding	31.11	13.7	40.41	29.1	52.00	33.2
b. Crimping	51.95	1.0	70.81	4.9	82.49	6.1
c. Hulling and rolling	....	...	....	...	16.55	6.0
2. Mixing	22.71	22.0	40.58	37.0	124.58	20.1
3. Pelleting	....	...	....	...	18.36	32.7

D. Bulk vs. Bagged Receiving of Ingredients—An expanding area of interest has been the receiving of ingredients in bulk form. These are formula

EDITOR'S NOTE: *The author was associated with J. K. Walkup, professor and head of industrial engineering at Iowa State University, and Dr. Harold A. Cowles, associate professor of industrial engineering at Iowa State University, in a study of cooperative custom feed mills in Iowa. Parts of this study, which is the basis for the author's M.S. thesis, are produced here. This article is basically a summary of the important points in the author's thesis. An attempt was made to emphasize those points especially pertinent to custom mill operators. Also, a certain number of conclusions presented here can best be substantiated by a study of the original thesis.*

TABLE 1. Annual Costs of Operation[1]

Cost item	Model mill, dollars per year		
	5 ton	15 ton	25 ton
1. Direct labor	$4,046	$6,819	$9,629
2. Indirect labor	4,871	5,473	6,998
3. Payroll taxes	468	645	873
4. Power	423	1,008	2,040
5. Depreciation, building	624	826	1,250
6. Depreciation, equipment	1,889	2,544	4,692
7. Insurance	450	650	1,200
8. Property taxes	600	1,100	1,800
9. Repairs and maintenance	250	750	1,800
10. Truck expense	950	1,830	2,500
11. Advertising	800	1,000	1,500
12. Miscellaneous	1,500	2,000	3,000
	$16,871	$24,645	$37,282

TABLE 2. Standard Costs for 5-ton Model Mill[2]

Work center	Direct labor $/ton	Overhead $/ton	Total cost $/ton
1. Receiving			
a. Grain	$0.075	$0.585	$0.660
b. Bulk ingredients	0.102	0.635	0.737
c. Sacked ingredients and supplements	0.247	0.604	0.851
2. Processing			
a. Grind grain	0.314	1.770	2.084
b. Crimp/crack corn	0.279	2.165	2.444
c. Hull and roll oats (not in 5 ton model)			
3. Mixing			
a. Formula mix	0.711	2.155	2.866
b. Custom mix	0.359	1.290	1.649
4. Pelleting (not in 5 ton model)			
5. Sacking			
a. Sack and tie, 100 lb.	0.591	1.274	1.865
b. Sack and sew, 50 lb.	1.123	2.265	3.388
c. Sack and sew, 100 lb. (not in 5 ton model)			
6. Warehousing			
a. Load bulk	0.097	0.253	0.350
b. Load sacked	0.352	0.858	1.210
7. Delivery			
a. Bulk	0.812	3.025	3.837
b. Sacked	1.351	2.655	4.006

V. M. Tamashunas

AUTHOR—Mr. Tamashunas has been an assistant professor of industrial engineering and engineering extension at Iowa State University since 1959. He has had teaching experience in industrial organization, personnel supervision, motion and time study, factory planning, management and organization theory and production programming and control. He was an instructor in Iowa State's industrial engineering department 1956-1959, and received his M.S. degree in industrial engineering in 1959. He also has had about six years experience as an industrial engineer in industry.

feed and other additives purchased by the mill, essentially all materials except grain. Savings in this area are apparent. First is the differential in delivered cost at the mill for the same items in the two forms. Included are savings in the base price, transportation and bags. The second area of savings is at the mill. The savings at the mill are realized in the receiving operations and the mixing operations and can be summarized as follows:

	——Receiving——		——Mixing——		——Total——	
Model	Min./ton saved	D.L./ton saved	Min./ton saved	D.L./ton saved	Min./ton saved	D.L./ton saved
5 ton	6.6	$0.142	14.0	$0.301	20.6	$0.443
15 ton	6.7	0.144	12.9	0.277	19.6	0.421
25 ton	6.6	0.142	12.4	0.267	19.0	0.409

It should be noted the savings do not reflect the differentials in base price. There would also be no savings in actual overhead costs.

E. Bulk vs. Bagged Handling of Finished Product—Although earlier reports indicated very little was to be gained by the elimination of bagging the finished product except the cost of the bag, this analysis finds a significant difference.[7] The savings are realized in three work centers, sacking, warehousing and loading and delivery. The area is one of expanding interest, and one where substantial savings can be realized. These direct labor savings together with appropriate overhead savings are summarized below. The savings on formula feed are greater since the average weight per sack handled is considerably less.

	—D.L. savings/ton—		—O.H. savings/ton—		—Total savings/ton—	
Model	Custom	Formula	Custom	Formula	Custom	Formula
5 ton	$1.385	$1.917	$1.519	$2.510	$2.904	$4.427
15 ton	1.291	1.619	1.702	2.293	2.993	3.912
25 ton	1.298	1.614	1.724	2.153	3.002	3.767

CONCLUSIONS—The conclusions to this analysis can best be summarized by area of investigation as detailed in the preceding section. Also, a certain number of conclusions presented here can be better substantiated by a study of the original thesis.

Calculation of manufacturing costs, service charges and profit margins:

1. All of the model mills are operating at a loss on custom services.

TABLE 3. Standard Costs for 15-ton Model Mill[5]

Work center	Direct labor $/ton	Overhead $/ton	Total cost $/ton
1. Receiving			
a. Grain	$0.069	$0.318	$0.387
b. Bulk ingredients	0.082	0.377	0.459
c. Sacked ingredients and supplements	0.225	0.452	0.677
2. Processing			
a. Grind grain	0.215	0.923	1.138
b. Crimp/crack corn	0.185	0.684	0.869
c. Hull and roll oats (not in 15 ton model)			
3. Mixing			
a. Formula mix	0.586	1.238	1.824
b. Custom mix	0.284	0.680	0.964
4. Pelleting (not in 15 ton model)			
5. Sacking			
a. Sack and tie, 100 lb.	0.546	0.776	1.322
b. Sack and sew, 50 lb.	0.874	1.367	2.241
c. Sack and sew, 100 lb. (not in 15 ton model)			
6. Warehousing			
a. Load bulk	0.073	0.113	0.186
b. Load sacked	0.322	0.702	1.024
7. Delivery			
a. Bulk	0.481	1.425	1.906
b. Sacked	0.977	1.762	2.739

TABLE 4. Standard Costs for 25-ton Model Mill[6]

Work center	Direct labor $/ton	Overhead $/ton	Total cost $/ton
1. Receiving			
a. Grain	$0.064	$0.242	$0.306
b. Bulk ingredients	0.077	0.279	0.356
c. Sacked ingredients and supplements	0.219	0.332	0.551
2. Processing			
a. Grind grain	0.182	0.708	0.890
b. Crimp/crack corn	0.161	0.495	0.656
c. Hull and roll oats	0.406	2.460	2.866
3. Mixing			
a. Formula mix	0.406	1.183	1.589
b. Custom mix	0.187	0.790	0.977
4. Pelleting	0.432	2.310	2.742
5. Sacking			
a. Sack and tie, 100 lb.	0.522	0.721	1.243
b. Sack and sew, 50 lb.	0.838	1.150	1.988
c. Sack and sew, 100 lb.	0.438	0.792	1.230
6. Warehousing			
a. Load bulk	0.064	0.092	0.156
b. Load sacked	0.299	0.567	0.866
7. Delivery			
a. Bulk	0.395	1.017	1.142
b. Sacked	0.926	1.545	2.481

DEDICATION—Accepting congratulations from J. Jerome Thompson, vice president, Chas. Pfizer & Co., Inc., is Dr. Irvine H. Page (left), director of research, Cleveland Clinic Foundation. Dr. Page gave the main address at the dedication ceremonies formally opening Pfizer's Medical Research Laboratories at Groton, Conn., Oct. 6 Joining Mr. Thompson are John E. McKeen, Pfizer president (right), and Warren M. Reynolds, manager of the company's Agricultural Research and Development Center, Terre Haute, Ind. The plaque in the background, unveiled during the dedication program, bears the inscription: "Pfizer Medical Research Laboratories, dedicated to scientific research in the service of medicine and mankind." Over 1,000 persons attended the day's program.

2. All of the model mills are operating at a gain considering both custom services and sale of formula feed.

3. The larger the model mill the smaller the percentage of loss on custom services.

4. The larger model mills have lower manufacturing costs together with lower service charges.

5. If bulk delivery of feed is omitted from consideration, all models are essentially operating their custom services at a break-even point.

6. Bulk delivery of feed is the service activity for which the loss differential between actual costs and service charges is the greatest.

Break-even analysis:

1. Custom service income alone will not permit the mills to break-even on total operation.

2. The break-even points for total activities are quite low, considering the substantial amount of fixed investment required. This can be attributed to the attractive margin on formula feed.

3. The larger the model mill, the lower the break-even point in per cent of rated capacity.

Capacity analysis:

1. In terms of basic operating equipment, processing, mixing and pelleting, the capacity far exceeds the actual utilization.

2. Utilization of capacity tends to increase as model size increases.

3. Lack of holding bins for ground grain and sacking bins for mixed feed lowers mixing capacity.

4. Investigation of additional holding bins and load-out bins should be considered by the mill management prior to purchasing additional mixing capacity.

5. Mill managements should give increasing attention to production planning and scheduling as a means for realizing greater utilization of existing equipment capacities.

Bulk vs. bagged receiving of ingredients:

1. Definite advantages exist in receiving ingredients in bulk form contrasted to bagged. Bulk ingredients are stored in holding bins compared to floor storage for bagged ingredients.

2. Apart from the differential in delivered cost at the mill savings are realized in two work centers, receiving and mixing.

3. The direct labor saving for every ton of ingredient received and used in mixing is 40¢ to 45¢.

4. It is believed there would be no saving in actual overhead costs.

Bulk vs. bagged handling of finished product:

1. Substantial advantages are present in the elimination of bagged handling of finished product exclusive of the bag cost. This process requires bulk holding bins, loadout bins and bulk trucks.

2. Savings would be realized in the bagging, warehousing, and delivery work centers.

3. The savings per ton including both direct labor and overhead are approximately $3 for custom feed and $4 for formula feed, including all three of the above work centers.

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Nutrition, Condemnations Among Topics at Arkansas Conference

FAYETTEVILLE, ARK.—The program of the 1960 Arkansas Formula Feed Conference held at the University of Arkansas recently covered a wide variety of topics. Several of the discussions were summarized in a previous article (Feedstuffs, Oct. 8).

Topics covered here include nutrition of laying hens and breeding hens, control of condemnation losses in broilers, creep feeding of beef calves, dairy cow feeding, feeding dairy calves and grit for poultry.

Information on "Nutrition of Laying and Breeding Hens" was presented in a paper by Lionel Barton and Dr. E. L. Stephenson, both of the University of Arkansas animal industry and veterinary science department.

The two researchers concluded from a study they conducted that the meat-type and egg-type hens responded somewhat differently, with the egg-type bird exhibiting maximum performance at a lower level of protein than the meat-type bird. Although addition of fat improved efficiency in both breeds, it produced greater improvements in the meat-type bird. Addition of methionine (MHA — trademark of Monsanto Chemical Co.) tended to improve the efficiency of feed utilization in the egg-type bird receiving the lower protein level (13%) but did not improve performance when the higher protein levels were fed.

The low protein diets were significantly more efficient than were the high protein diets, according to the report. Also, the higher levels of fat tended to improve efficiency of feed utilization.

The meat-type hens in the study were on protein levels of 13.0 and 19.5%. The methionine levels used were 0 and .075%. Energy levels were obtained by addition of fat at 0 and 5%.

Protein levels for the egg-type birds were 13.0, 16.25 and 19.5%. Fat was added in the following levels: 0, 5 and 10%. MHA levels were 0, .075 and .15%.

Condemnation Losses

"The Control of Condemnation Losses in Broilers" was the subject of a report by Dr. E. H. Peterson, Lowell T. Lankford and Ruben H. Johnson, all of the university staff.

The researchers concluded, "The management program along with proper vaccination is the most important approach toward reducing condemnations. Most of our broiler chicks are carrying the CRD organism and the disease can be triggered off by any of many stress factors. The broiler grower should be aware of the importance of a carefully planned and carried out management and vaccination program."

Among management practices recommended are: Allowing at least one week between batches of broilers to properly clean the house and disinfect the equipment and giving more attention to temperature control during the brooding period for infected birds.

Means of reducing losses are listed as: "Control of Newcastle disease, since control of CRD is impossible without control of this disease, judicious use of antibiotics and proper care of the hatchery supply flock."

In this connection, Dr. Peterson described a program which includes the use of Aureomycin and potentiation of the antibiotic through the reduction of calcium levels in the feed.

Creep Feeding

Dr. Maurice L. Ray and William M. McBride of the University of Arkansas reported on "Creep Feeding of Beef Calves Maintained on Good Arkansas Pastures."

They said the final answer on creep feeding must be made on the individual farm with consideration of the beef cattle production program being followed, the quantity and quality of pastures and the availability and cost of grains.

Regarding the type of program, the researchers said that creep feeding is most likely to be profitable for the commercial beef cattle producer engaged in fat-slaughter calf or baby-beef programs since the immediate goal of both is slaughter of the calf.

Turning to the pasture situation, they said that when pasture quantity and quality are low, creep feeding may be advisable for even the feeder calf producer. When good forage is available in quantity, they said extra grain feeding may not be profitable even for the purebred breeder or the fat slaughter calf or baby-beef producer.

Regarding grain, it is reported that the creep ration should contain mixed grains of high quality and palatability if calves are to consume enough for the grain to be beneficial to them. The primary problem is, "Does the increased gain pay a profit above increased expenses for me?" Dr. Ray and Mr. McBride said this question can be answered only on the individual farm in view of the animal and forage production programs being followed.

View of Biochemist

In his talk on "A Biochemist Looks at the Feed Industry," James S. Dinning of the University of Arkansas School of Medicine department of biochemistry said, "The biochemist and the feed industry are mutually

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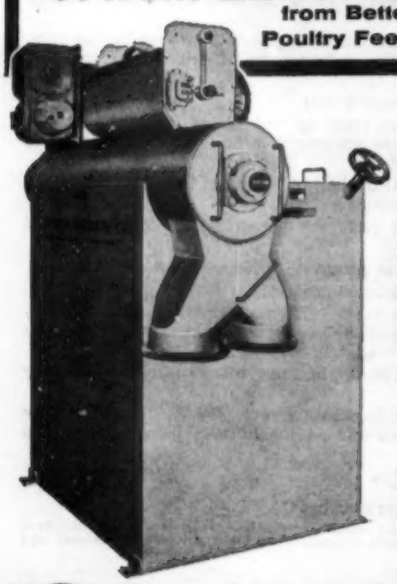

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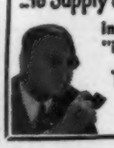

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dependent and should look to each other for support and for stimulation."

He further stated, "I am of the opinion that the absence of malnutrition in this country can be traced in large part to improved agricultural practices and a major share of this is in improved practices of animal feeding."

He said the biochemist's contribution to this is that "We are able to grow more products for less cost because we understand the nutritional requirements and their interrelationships. Many of the nutrients now known to be required by animals were discovered in the course of biochemical research."

Feeding Dairy Cows

Dr. O. T. Stallcup of the Arkansas Agricultural Experiment Station reported on "Recent Developments in Feeding Dairy Cows."

Dr. Stallcup commented on energy as one of the most important constituents of the ration of the dairy cow. He further stated that carbohydrate materials used in ruminant rations pass through the rumen and are converted by fermentation into volatile fatty acids that are absorbed and supply the major source of energy. Energy digestion and utilization depends much on the fermentation processes.

He commented, "We must provide minerals, suitable nitrogen sources and growth factors for the bacteria if we are to have efficient utilization. It now appears that the proportion and amounts of different volatile fatty acids produced can explain in part the productive energy value of a ration."

He pointed out factors affecting appetite as: the forage itself, the animal and its needs and the conditions imposed by the manager.

On the protein subject, Dr. Stallcup said that "D'ori and Loosli studied the feeding value of molasses, urea and alcohol for steers. Nitrogen retention was increased by the addition of ethyl alcohol to a mixture of molasses and urea to about the same extent as by an equal number of calories from starch. Reis and Reid showed that there was no utilization of ruminal ammonia for protein synthesis unless glucose was added in vitro trials.

"Stallcup and Looper have studied the fate of the nitrogen of soybean oil meal, cottonseed meal, Morea and cottonseed hulls in rumen. The results indicate that, although the release of ammonia from Morea is rapid and follows a similar pattern as when urea is fed, the danger of alkalosis may be lessened due to the buffering action of phosphoric acid which keeps the pH near 7. The release of ammonia from cottonseed meal, soybean oil meal and cottonseed hulls was very low. The high protein level present in the rumen liquor when soybean oil meal is fed may indicate some special advantage for this feed in the diet of ruminants."

Calf Feeding

"Developments in Feeding Dairy Calves" was the title of the presentation of Dr. O. H. Horton of the animal industry and veterinary science department at the University of Arkansas.

He said, "The effects of highly saturated vegetable oils have been found to adversely affect the growth and physical condition of dairy calves when substituted for butterfat in the diet. Feeding corn oil filled milk as well as lard and butter oil prepared from oxidized butter exhibited symptoms of muscular involvement. The apparent digestibility coefficients for butter oil were significantly greater than those for corn oil, hydrogenated corn oil and lard.

"A study at Michigan State University showed that supplementation of baby calf rations with either Aureomycin or erythromycin improved the rate of gain, increased feed consumption and reduced the incidence of calf scours. Hygromycin did not improve the weight gains or skeletal growth but did reduce the incidence of scours. High levels of hygromycin tended to reduce the consumption of calf starter.

"It has been reported that oleandomycin definitely improved the performance of both steer and calf. Oleandomycin fed at the rate of 20 gm./ton increased growth by 12% and feed efficiency 5% in baby calves."

B. N. McPherson and Dr. E. L. Stephenson of the University of Arkansas reported on "The Feeding Value of Grit for Poultry." They indicated that a study on the matter completed at the university revealed no significant mean differences due to effect of diet or grit treatment on any of the variables measured. Thus they said, "We conclude that in this study grit was neither helpful nor harmful."

The test used White Leghorn hens maintained in individual cages at the University of Arkansas. They were divided into four experimental groups with 24 individually fed birds being allotted to each group.

Diets fed were: all mash, all mash plus grit, mash-grain and mash-grain plus grit.

The diets were calculated to contain 16% protein and to supply all of the dietary factors known to be required by laying hens. Feed, water and granite grit (in the pens where it was fed) were supplied ad libitum. The experiment was conducted for a period of eight months and individual bird measurements on egg production, egg weight, feed consumed, mortality and efficiency of feed utilization were made.

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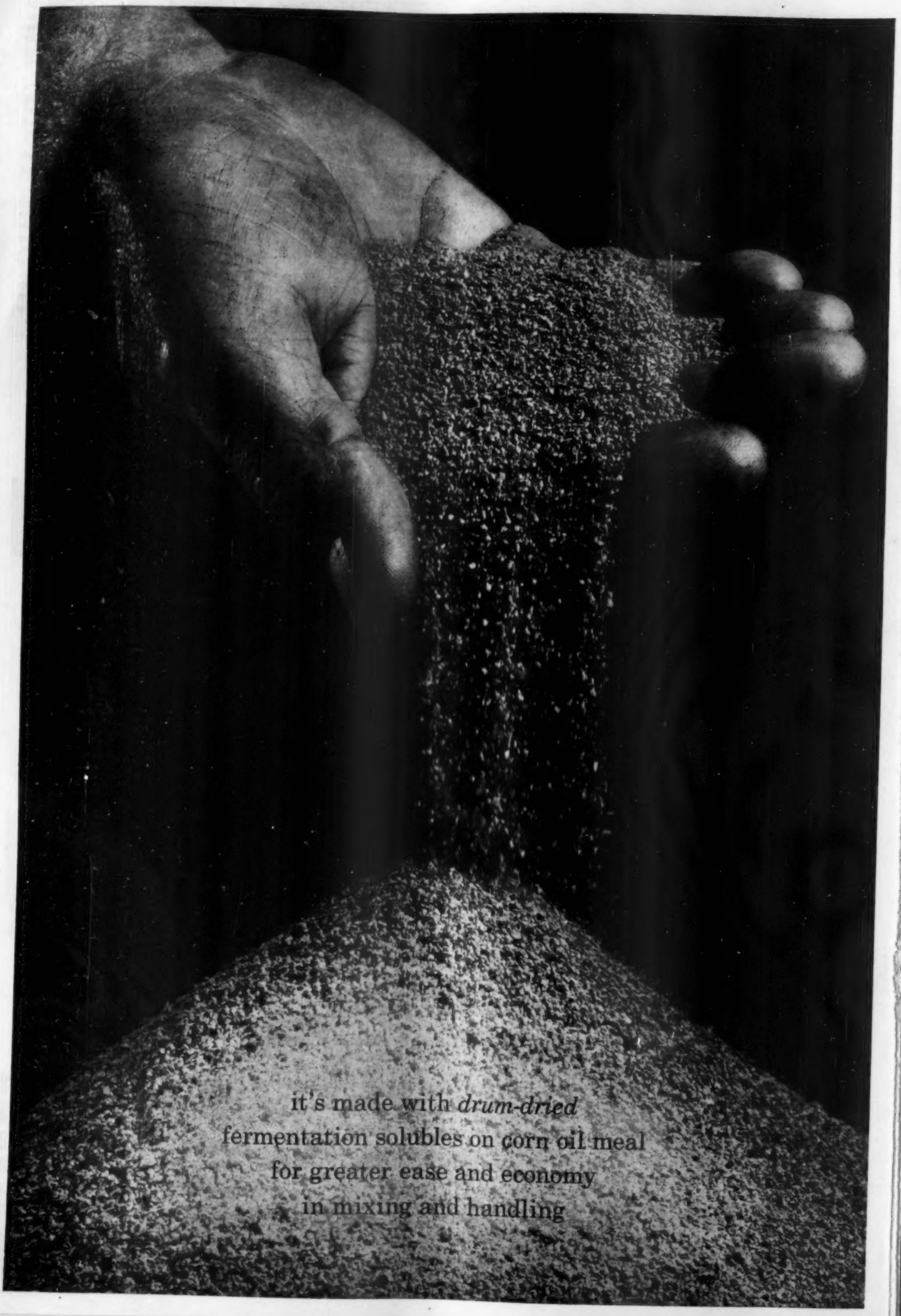
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JOE BROOKS

BY AL P. NELSON

Time to Push Management Rules

A tall, thin farm woman of about 50, wearing horn-rimmed glasses, grey dress and grey coat, came into the Brooks Feed Mill salesroom that wet October day. Over her head she had a red scarf. In her right hand was a shopping list.

Sighting Joe Brooks coming out of his office, she called, "Oh, Mr. Brooks, I was just sick when I read the egg price news in the monthly bulletin you sent out the other day."

"Oh, hello, Mrs. Cleaver," Joe smiled brightly, coming forward. "Want a cup of coffee this wet morning?"

"Yes," said the farm woman. "I guess I have time for that. I've got such a long shopping list. I don't see how I'll ever get through this morning and get back to make lunch for Jim."

She took the paper cup full of coffee which Joe handed her and sipped the hot fluid. "My, it does taste good!" she said. "Our 5 o'clock breakfast is farther away than I thought."

Joe had several folding chairs handy. He opened one. "Sit down and tell me about the bad news in my bulletin. I didn't know there was any." He opened another folding chair for himself.

The woman sat down and sipped more hot coffee. Her pale cheeks seemed to get a little color from the hot coffee. "That news about good egg prices holding up all through the rest of 1960 and into 1961!"

Joe lifted his eyebrows. "Is that bad news "

"It is—for me!" Mrs. Cleaver wailed. "I've got a henhouse that can house 500 layers, and I have only 100. Think of all the profit I'm losing. I thought egg prices would be terrible this fall. They were so low last spring. Now that they are high, I haven't enough chickens."

Remember Spring

For a moment Joe said nothing. He could remember he had urged Mrs. Cleaver to buy enough baby chicks to maintain a 500 laying hen flock, but that was April when egg prices were low. Mrs. Cleaver had balked. Joe had had a hard time selling her 100 chicks at the time.

"Well," he said, "I wouldn't worry about the business you're losing. You aren't losing it, really, because you haven't got 500 hens. You have 100, and they are a mighty good strain. I know, because you bought those quality chicks."

"It's easy for you to talk that way," Mrs. Cleaver said sadly. "You're not raising hens."

"That's true," Joe said, "but with your 100 hens, if you take care of them especially well during this h'gh egg price period, you'll make more profit per hen—and that is what you're after."

"What do you mean?" she asked.

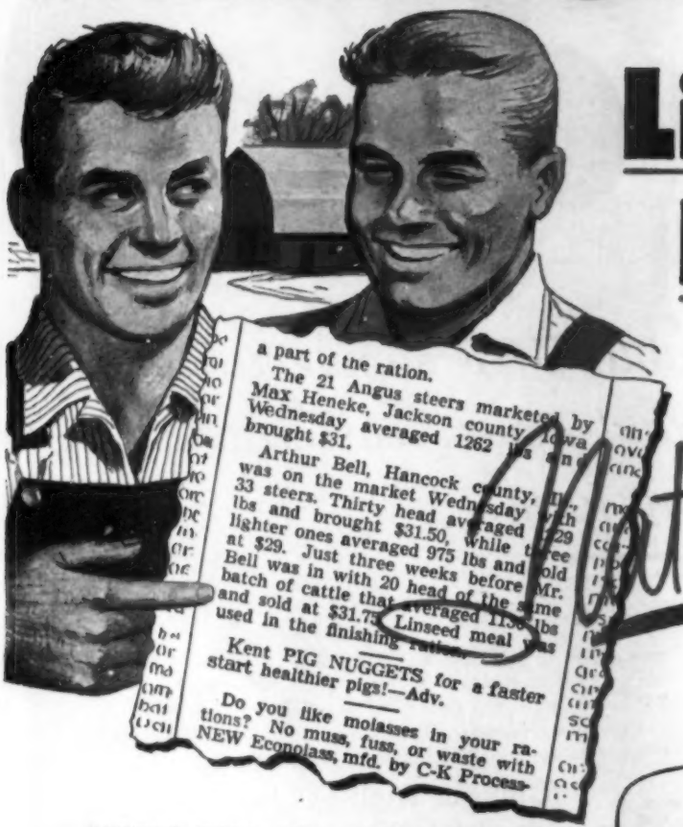
Joe crossed one leg over the other. "With those 100 quality hens, Mrs. Cleaver, if you follow good egg management rules to the letter, you'll be able to increase your egg production and make the time you spend on the flock return more profit to you."

"How can I do that?" Mrs. Cleaver looked interested.

Joe reached out and took a booklet from the table. "Here's the latest poultry flock management bulletin," he said. "The rules to follow are explained carefully. Some of the most important, I think, include turning on morn'ng and evening l'ghts to increase the layers' working day, prop-

(Turn to JOE BROOKS, page 69)

Minnesota Linseed Meal... Naturally!


a part of the ration.
The 21 Angus steers marketed by Max Heneke, Jackson county, Iowa, Wednesday averaged 1262 lbs and brought $31.
Arthur Bell, Hancock county, was on the market Wednesday with 33 steers. Thirty head averaged 1229 lbs and brought $31.50, while three lighter ones averaged 975 lbs and sold at $29. Just three weeks before Mr. Bell was in with 20 head of the same batch of cattle that averaged 1156 lbs and sold at $31.75. Linseed meal was used in the finishing ration.
Kent PIG NUGGETS for a faster start healthier pigs!—Adv.
Do you like molasses in your rations? No muss, fuss, or waste with NEW Econolass, mfd. by C-K Process-

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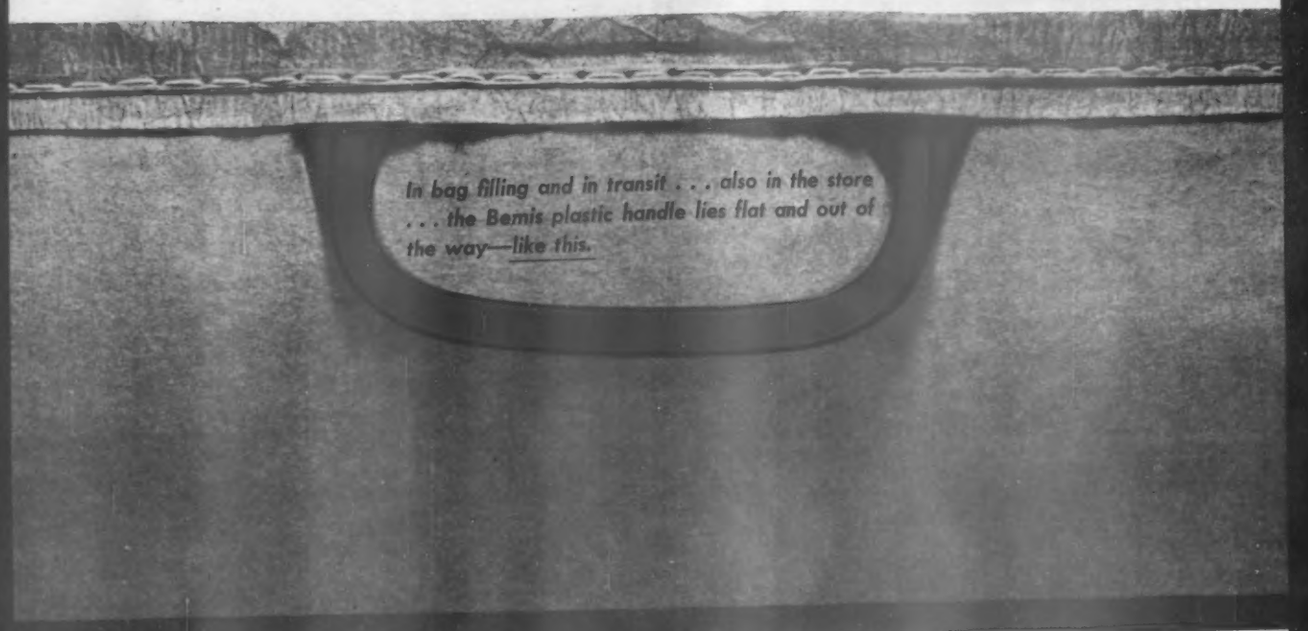

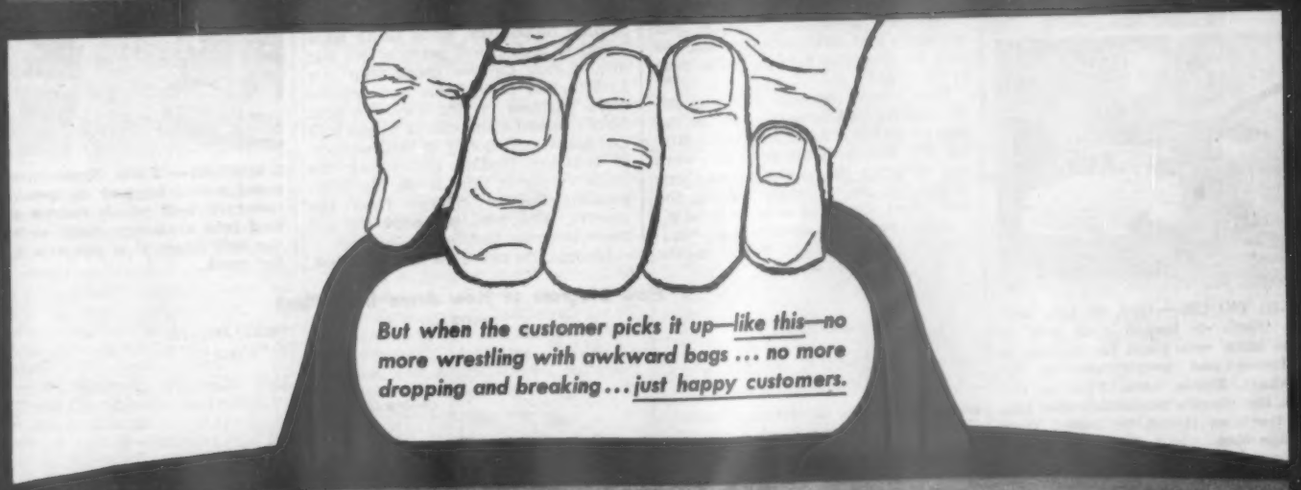
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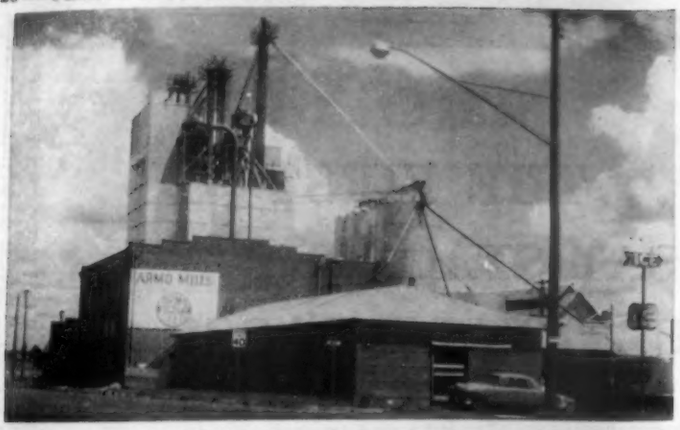


MODERN MILL—This view shows the results of a modernization and expansion project recently completed by Armo Mills, Inc. The new mill was designed by Hayes & Stolz Industrial Mfg. Co. of Ft. Worth. New construction sprouted from the brick walls of a building which was used originally as a cottonoil mill.

New Push-Button Feed Mill In Operation in Texas

By Jess Blair
Feedstuffs Special Writer

One of the largest and most completely equipped feed mills in southern Texas is now in operation at Lockhart, Texas. The Armo Mills, Inc., plant was built and is managed by four men who are now prepared to make more than 40 different kinds of feed.

Newton Wilson, Jr., Armo president, says the new mill replaces an outmoded plant in an old brick building. Brick walls of the former mill were incorporated into the new plant, but new concrete flooring, a warehouse, other buildings, new driveways and improved parking areas were added.

The push-button mill can turn out up to around 100 tons of feed in an eight-hour shift.

Noting the versatility of the new mill, Mr. Wilson says, "We are even putting out a dog food under the Armo brand. This last winter our special beef cattle supplement was sold throughout this area. And our complete poultry and dairy feeds are also being sold in greater volume.

"We can make any kind of feed and do it fast and efficiently. And we plan to keep our feed supplies fresh at all times."

Even while the new mill was being constructed according to the design of Hayes & Stolz Industrial Mfg. Co., Ft. Worth, Armo personnel were out scouring the plains of southern Texas for new business which the new plant would be able to handle.

Armo has retail dealers in 45 counties and also serves many of the larger poultrymen and feeders directly. One of the firm's customers is an operation near Lockhart which has 25,000 laying hens.

BULK TRUCK — One of two new bulk trucks is loaded with feed at Armo Mills' new plant for hauling to cattlemen and poultrymen of the Lockhart, Texas, area. Feed is run from the plant's production line into the truck or it can be loaded from storage bins.

SCALE HOPPER — This is view of scale hopper in new Armo Mills, Inc., plant, which was recently completed at Lockhart, Texas.

No Integration

"We are not planning on vertical integration," says Mr. Wilson. "We want to make the best possible feed for each type of livestock and poultry and sell it at competitive prices. Payment for feed is usually kept on a weekly basis, with 30 days being the maximum."

Armo is giving outside help to customers and retail dealers. B. B. Hilburn, Armo vice president and sales manager, heads a staff which includes four servicemen, each of whom has had some college training and several years of experience.

Oran Coker, Jr., is vice president of the company, and W. E. Notley, secretary-treasurer, also serves as the firm's nutritionist.

Mr. Wilson notes that most of the company's service work is with poultrymen. He said veterinarians usually are called upon by beef growers and dairymen for animal health service and for some nutrition advice, but Armo personnel help work out rations for these producers.

Armo has supplements for smaller operations to mix with farm grains.

Sacked feeds are used extensively in the area served by Armo; there are many small farms. Some of the larger feeders are beginning to convert to bulk feeding facilities. Armo Mills is encouraging this shift.

Original Mill Bought in '45

Owners of Armo Mills have been in business at Lockhart since they bought the original mill in 1945. Business had been adequate, but the owners saw that the area around Lockhart was on the downgrade. Once a fabulous cotton region, the boll weevil and soil erosion combined to reduce cotton to a minor crop. And as it declined, so did the farming economy of the area.

"We could do one of two things," said Mr. Wilson. "Go into contract feeding of poultry, as is being done in other areas, and perhaps get our own flocks. Or we could ship our feed farther from home and achieve more business in this way. We preferred to add some extras to the mill and spend our money in this manner. If contract feeding comes, we are prepared for it. And if the big independent feeders emerge from the present situation, we hope to get their business also."

In order to make 40 kinds of feed, the mill owners are making their own premixes, and can also add animal and vegetable fats to any mixtures.

Though the inclusion of fat in animal feeds has not become popular in this area yet, the Armo management wants to be prepared for its coming. They feel that the feed mill of the future must be capable of doing almost everything.

OFFICERS — W. E. Notley (left), secretary-treasurer of Armo Mills, confers with Oran Coker, Jr., vice president.

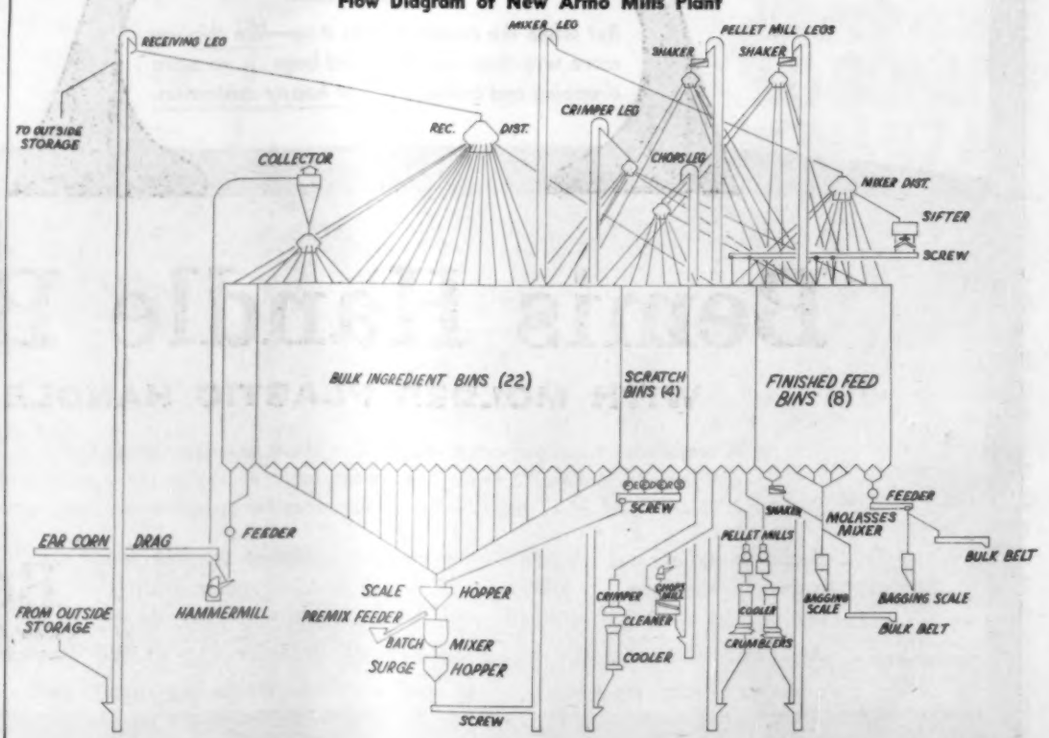
Equipment

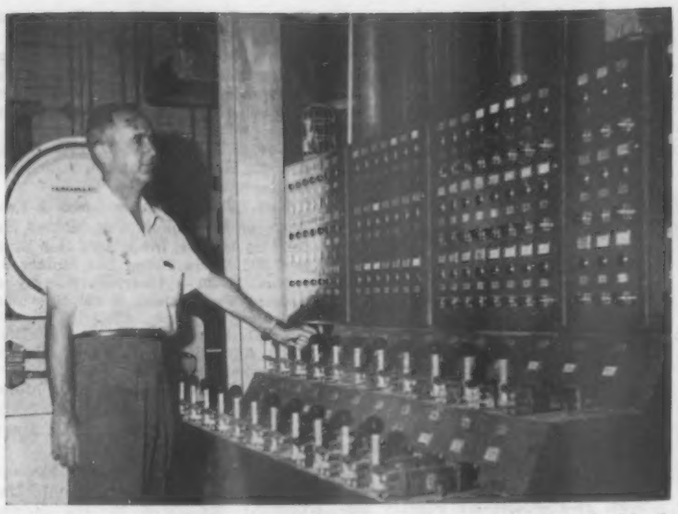
Armo management believes that all of its newly acquired facilities are necessary to provide volume and services for their expanding business.

Equipment includes: Marion premixer; two D. S. Anthony burr mills; Westinghouse air compressor; Hayes & Stolz molasses mixer; two Hayes & Stolz molasses pumping units; Hayes & Stolz fat pumping unit; Hayes & Stolz truck hoist; Hayes &

BAGGERS — Two Armo workmen stand beside bagging equipment and conveyor belt which carries sacked feed into a storage room or outside the mill where it is put onto a waiting truck.

Flow Diagram of New Armo Mills Plant





CONTROLS — W. E. Notley, nutritionist for Armo Mills, Inc., Lockhart, Texas, shows how control board of new mill is used.

Stolz automatic molasses heating tank; Sidney manlift; 100 h.p. Jacobson hammermill; two California Century pellet mills, 75 and 50 h.p.; five Hayes & Stolz bucket elevators; five Hayes & Stolz turnhead distributors; one 2-ton Hayes & Stolz horizontal mixer with surge bin; Eureka grain cleaner; Davis oat bin crimper and steamer; two Richardson bagging scales; Fairbanks-Morse hopper scale; one 50-ft. Fairbanks-Morse truck scale, and a Norvell sifter.

As the mill neared completion, Armo began adding to its rolling equipment. The company has 16 trucks of various sizes. Several large single-axle trucks with tandem trailer vans are used to haul feeds to dealers. Two new 6-ton bulk trucks haul feed directly to large feeders.

Armo feed storage space is quite adequate. The new plant has enough for 500 tons of ingredients and 60,000 bu. of grain.

Announce Dates for Illinois Agricultural Industries Forum

URBANA, ILL.—"Meeting Change in Agriculture and Industry" will be the theme for the third annual University of Illinois Agricultural Industries Forum Jan. 31-Feb. 1.

General sessions featuring nationally known authorities are planned, along with special-interest groups, according to the announcement. The following speakers have accepted invitations to appear on the general sessions:

Earl W. Kintner, chairman, Federal Trade Commission, will speak on "How Much Control of Business by Monopolies and Government Can We Afford or Endure?"

O. V. Wells, director, Agricultural Market Service, U.S. Department of Agriculture, will discuss "The Economic Environment Confronting Agricultural Industries."

Irwin A. Cockrane, director, University of Illinois Bureau of Business Management, will talk on "This Business of Wheel Spinning."

Nicholas Nyradi, director, Institute of International Studies, Bradley University, will speak on "Competing on a World Market." He was secretary-treasurer of Hungary before he came to the U.S.

Special sessions are scheduled for those interested in marketing livestock, grain, dairy products, poultry and eggs, machinery and equipment, chemicals, fertilizer, seed and feed.

Garner House, one of the men's residence halls, will serve as forum headquarters. Rooms and meals will also be furnished there. The opening session starts at 9:30 a.m. Jan. 31 and adjournment is scheduled for 12:30 p.m. Feb. 1. E. E. Broadbent, professor of agricultural marketing, will serve as forum chairman again this year.

Fees on Feed and Seed To Pay for Inspections

CONCORD, N.H. — The New Hampshire Department of Agriculture has taken steps to collect funds from the increased registration fees on feeds, seeds and fertilizers. The funds will be used to help finance inspections made to insure that regulations pertaining to farm supplies are followed.

At a recent meeting of the department's agricultural advisory board, it was pointed out that the increased fees were put into effect at the suggestion of the state administration. It was reportedly understood that a special session of the legislature would authorize the agriculture department to use this money in conducting the inspections.

However, the proposed special session of the lawmakers never materialized, and the extra funds went into the treasury for general state use.

Other subjects discussed at the advisory board gathering included feed and fertilizer law violations in the state, weights and measures problems, growing demands for mastitis testing service and bonding of New Hampshire poultry buyers.

Officials appearing before the agricultural advisory board included Clement A. Lyon, director of markets and standards; George H. Laramie, department control specialist; Dr. R. W. Smith, state veterinarian; Alfred T. Hepworth, department chief inspector, and Alfred Pierce, secretary of the state milk control board.

Chemists Plan Feed Technology Program

ST. PAUL — A day-long program devoted to feed technology will be one of the features of the 46th annual meeting of the American Association of Cereal Chemists April 9-13, 1961, in Dallas at the Baker Hotel. The feed technology program will be held April 11.

The morning session will be chaired by Robert C. Wornick, Chas. Pfizer & Co., Inc., agricultural research department, Terre Haute, Ind. In charge of the afternoon session will be Max L. Cooley, Hoffman-Taff, Inc., Springfield, Mo.

Anyone having papers they wish to present at these sessions should contact the chairmen immediately, the association says. Deadline for receipt of titles is Dec. 25.

Presiding at the meeting will be Dr. John A. Johnson, Kansas State University, president of the association. Program chairman is Dr. Byron S. Miller, Kansas State University. Hugh J. Fetty, American Foods, Inc., Dallas, will be in charge of local arrangements.

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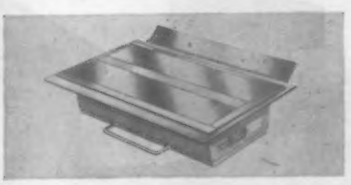

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Convention Calendar

Nov. 2-3 — Kansas Poultry Assn.; Broadview Hotel, Wichita; sec., Harry J. Reed, Box 663, Manhattan.

Nov. 2-3 — Illinois Feed Assn.-Illinois Poultry & Hatchery Federation, joint convention; Springfield, Armory, Springfield; sec., IFA, Dean M. Clark, 141 W. Jackson Blvd., Chicago 4; sec., IPHF, Aubrey Harless, Shelbyville, Ill.

Nov. 3—Swine Research Day; South Dakota State College, Brookings; R. C. Wahlstrom, Head, Animal Husbandry Dept.

Nov. 3-4 — Cornell Nutrition Conference; Hotel Statler, Buffalo, N.Y.; chm., Dr. H. H. Williams, Biochemistry and Nutrition Dept., Savage Hall, Cornell University, Ithaca, N.Y.

Nov. 4—Nevada Feed Conference; Fine Arts Bldg., University of Nevada, Reno.

Nov. 9-12 — National Renderers Assn.; Statler-Hilton Hotel, Dallas, Texas; sec., Miss Jamie Fox, 30 N. LaSalle St., Chicago, Ill.

Nov. 14-15 — Washington Animal Industry Conference; Skagit Valley College, Mount Vernon, Wash.; John G. Wilson, mgr., Washington State Feed Assn., 814 Second Ave. Bldg., Seattle 4.

Nov. 15—All-Iowa Sheep Day; Memorial Union, Iowa State University, Ames; T. W. Wickersham, Ext. Animal Husbandman, Curtiss Hall.

Nov. 15-16—North Carolina Egg Industry Conference; North Carolina State College, Raleigh; College Extension Division, Box 5125, State College Station, Raleigh.

Nov. 16—Poultry Industry Day; Blake Hall, College of Agriculture, Rutgers University, New Brunswick, N.J.; chm., Dr. R. L. Squibb, Poultry Science Dept.

Nov. 16-17—Missouri Poultry Improvement Assn.; Hotel Continental, Kansas City; sec., E. M. Funk, Columbia, Mo.

Nov. 16-18 — Florida Nutrition Conference; University of Florida, Gainesville; chm., Dr. J. P. Feaster, Animal Husbandry and Nutrition Dept.

Nov. 17-18 — Liquid Feed Assn.; Aladdin Hotel, Kansas City; Jack von Mettenheim, Princeton, Ill.

Nov. 20-22—Western Grain & Feed Assn. of Iowa; Fort Des Moines Hotel, Des Moines, Iowa; sec., Bob Skinner, 401 Shops Bldg., Des Moines 9.

Nov. 25-26 — American Society of Animal Production; Hotel Sherman, Chicago, Ill.; sec., Clair E. Terrill, Animal Husbandry Research Division, Agricultural Research Center, Beltsville, Md.

Nov. 27-28—Tennessee Feed Manufacturers Assn.; Noel Hotel, Nashville; sec., Charles H. Warfield, American Trust Bldg., Nashville.

Nov. 29-Dec. 1—Business Management Conference; Kansas State University; sponsored by the Kansas Grain & Feed Dealers Assn.; sec., Orris E. Case, 609 Wiley Bldg., Hutchinson, Kansas.

Dec. 1-2 — North Carolina Animal Nutrition Conference; North Carolina State College, Raleigh; chm., Dr. J. W. Kelly, Poultry Science Dept.; co-sponsored by North Carolina Feed Manufacturers Assn., sec., McNair Evans, Box 44, Mocksville.

Dec. 2-3—Arkansas Turkey Federation Convention and Show; Hot Springs, Ark.; exec. director, John Haid, Box 1446, Little Rock.

Dec. 2-3—Western Quickie Convention; Disneyland Hotel, Anaheim, Cal.; Don M. Turnbull, sec., American Poultry & Hatchery Federation, 521 E. 63rd St., Kansas City 10, Mo.

Dec. 6-7—Cornell Poultry Servicemen's Clinic; Cornell University, Ithaca, N.Y.

Dec. 6-7 — North Dakota Turkey and Egg Convention; Fargo Civic Center Auditorium, Fargo, N.D.; sec., Irving J. Mork, Fargo.

Dec. 7 — Upper Peninsula Feed Dealers Assn.; State Office Bldg., Escanaba, Michigan; sec., J. O. MacInnis, Box 342, Sault Ste. Marie.

Dec. 7-8—Midwestern Quickie Convention; Conrad Hilton Hotel, Chicago; Don M. Turnbull, sec., American Poultry & Hatchery Federation, 521 E. 63rd St., Kansas City 10, Mo.

Dec. 8 — Arizona Grain and Seed Assn.; Westward Ho Hotel, Phoenix; sec., Willis F. Nielson, Box 787, Mesa, Ariz.

Dec. 8-9—Eastern Quickie Convention; Ben Franklin Hotel, Philadelphia; Don M. Turnbull, sec., American Poultry & Hatchery Federation, 521 E. 63rd St., Kansas City 10, Mo.

Dec. 12-13 — Midwest Veterinary Nutrition Conference; Continental Hotel, Kansas City; Lloyd Larson, Midwest Feed Manufacturers Assn.,

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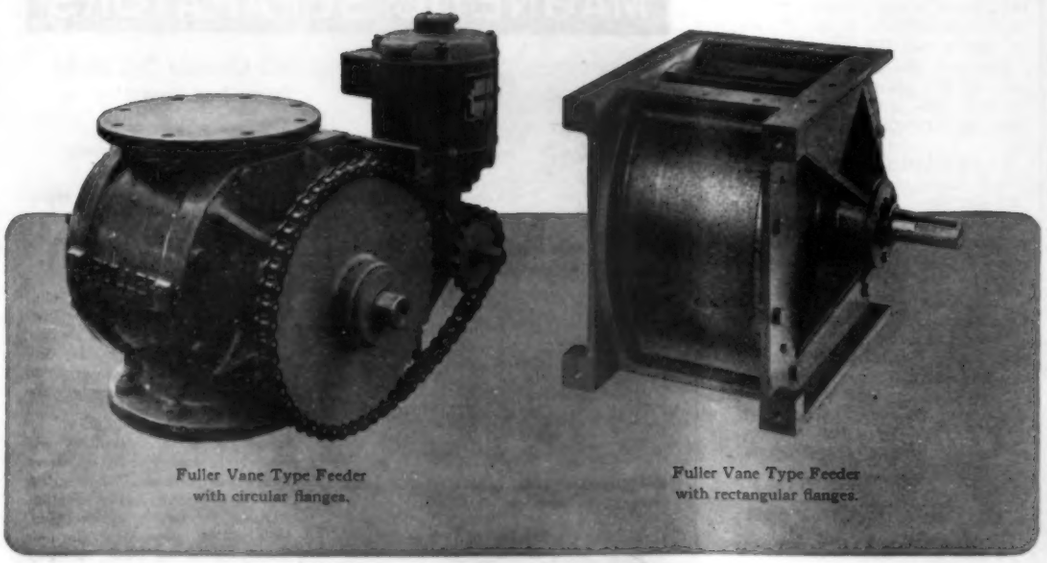

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20 W. 9th St. Bldg., Kansas City 5, Mo.

Dec. 13-15 — Minnesota Poultry Hatchery Assn.; Hotel Radisson, Minneapolis, Minn.; sec., L. L. Baumgartner, Litchfield, Minn.

Dec. 15-16 — Business Clinic for Elevator Managers; Kellogg Center, Michigan State University, East Lansing; Carleton C. Dennis, Department of Agricultural Economics.

1961

Jan. 4-6—National Turkey Federation; Conrad Hilton Hotel, Chicago, Ill.; sec., M. C. Small, P.O. Box 69, Mt. Morris, Ill.

Jan. 12-13—Michigan Feed & Grain Dealers Assn.; Michigan State University, Kellogg Center; sec., Nevel Pearson, P.O. Box 472, East Lansing.

Jan. 15-17—Indiana Grain & Feed Dealers Assn.; Claypool Hotel, Indianapolis; sec., Fred K. Sale, 600 Board of Trade Bldg., Indianapolis 4.

Jan. 16-17—Northwest Retail Feed Assn.; Hotel Pick-Nicollet, Minneapolis; sec., W. D. Flemming, 112 Grain Exchange Bldg., Minneapolis, Minn.

Jan. 23-25—Farmers Grain Dealers Assn.; Civic Memorial Auditorium, Fargo, N.D.; sec., Lloyd C. Hanson, 513 Black Bldg., Fargo.

Jan. 23-25 — Southeastern Poultry & Egg Assn.; Municipal Auditorium, Atlanta, Ga.; sec., Harold E. Ford, 235 E. Ponce de Leon Ave., Decatur, Ga.; for reservations: Atlanta Convention Bureau, Rhodes-Haverty Bldg., Atlanta.

Jan. 27 — Missouri Turkey Day; University of Missouri, Columbia; E. M. Funk, sec., Missouri Poultry Improvement Assn., Poultry Bldg., Box 568, Columbia.

Jan. 31-Feb. 1—Illinois Agricultural Industries Forum; University of Illinois, Urbana; Department of Agricultural Economics, 305 Mumford Hall.

Jan. 31-Feb. 1 — Hoosier Turkey Trot; Purdue Memorial Union, Purdue University, Lafayette, Ind.; John N. Howell, Turkey Department, Indiana State Poultry Assn., Poultry Bldg., Purdue University.

Feb. 1-2—Illinois Nutrition Conference; University of Illinois, Urbana; chm., E. E. Hatfield, Department of Animal Science.

Feb. 2—Beef Cattle Study Day; University of Arkansas Agricultural Experiment Station, Fayetteville.

Feb. 2-3—Oregon Animal Nutrition Conference; Withycomb Hall, Oregon State College, Corvallis.

Feb. 3-4—Minnesota Turkey Growers Assn.; Leamington Hotel, Minneapolis; sec., Roy Munson, 2200 University Ave., St. Paul, Minn.

Feb. 6-7—Montana Nutrition Conference; Montana State College, Bozeman; chm., Dr. O. O. Thomas, Animal Industry and Range Management Dept.

Feb. 7-10 — American Dehydrators Assn.; Jung Hotel, New Orleans, La.; executive vice president, Joseph Chrisman, 430 Board of Trade Bldg., Kansas City 5, Mo.

Feb. 8-9—Pacific Northwest Feed Mill Production School; Hotel Leopold, Bellingham, Wash.; sponsored by Washington State Feed Assn.; mgr., John G. Wilson, 814 Second Ave. Bldg., Seattle 4.

Feb. 10 — Washington State Feed Assn., annual convention; Hotel Leopold, Bellingham, Wash.; mgr., John G. Wilson, 814 Second Ave. Bldg., Seattle 4.

Feb. 10-11—Poultry Fact Finding Conference; sponsored by Institute of American Poultry Industries; pres., Harold M. Williams, 59 E. Madison, Chicago 2.

Feb. 19-21—Midwest Feed Manufacturers Assn.; Hotel Muehlebach, Kansas City, Mo.; executive vice president, Lloyd S. Larson, 20 W. 9th St. Bldg., Kansas City 5, Mo.

Feb. 19-21 — Ohio Grain & Feed Dealers Assn.; Neil House, Columbus; sec., George G. Greenleaf, 5625 N. High St., P.O. Box 121, Worthington.

March 8 — Distillers Feed Conference; Sheraton Gibson Hotel, Cincinnati, Ohio; L. E. Carpenter, Executive Director, Distillers Feed Research Council, 1232 Enquirer Bldg., Cincinnati 2.

March 8-9 — Nebraska Grain & Feed Dealers Assn.; Sheraton-Fontenelle Hotel, Omaha; sec., Howard W. Elm, Trust Bldg., Lincoln, Neb.

March 9-10 — Oklahoma Nutrition Conference; Oklahoma State University, Stillwater; Dr. Rollin Thayer, Poultry Science Dept.

March 16-17—Oregon Feed & Seed Dealers Assn.; Sheraton-Portland Hotel, Portland; mgr., Russ Hays, 702 Lewis Bldg., Portland 4.

March 16-17 — Maryland Nutrition Conference; Shoreham Hotel, Washington, D.C.; chm., Dr. R. D. Creek, Poultry Husbandry Dept., University of Maryland, College Park.

March 20-24—Grain & Feed Dealers National Assn.; Washington D.C.; sec., Herbert L. Sharp, 400 Folger Bldg., Washington 5, D.C.

April 3-4 — National Institute of Animal Agriculture; Purdue University, Lafayette, Ind.; sec., Karl D. Butler, P.O. Box 521, First National Bank Bldg., Ithaca, N.Y.

April 9-13 — American Association of Cereal Chemists; Baker Hotel, Dallas, Texas; 1955 University Ave., St. Paul 4, Minn.

April 10-12—Poultry & Egg National Board; Sheraton Towers Hotel, Chicago, Ill.; mgr., Lloyd H. Geil, 8 S. Michigan Ave., Chicago 3.

April 20-22—California Hay, Grain & Feed Dealers Assn.; Jack Tar Hotel, San Francisco; sec., Leo L. Johnson, Blue Anchor Bldg., 1400 10th St., Sacramento 14.

April 27-29—Kansas Grain & Feed Dealers Assn.; Broadview Hotel, Wichita; sec., Orris E. Case, 609 Wiley Bldg., Hutchinson.

May 7-10—American Feed Manufacturers Assn. Convention and National Feed Show; Conrad Hilton Hotel, Chicago, Ill.; sec., W. T. Diamond, 53 West Jackson Blvd., Chicago 4.

June 8-11 — Canadian Feed Manufacturers Assn.; National Convention; Manoir Richelieu, Murray Bay, Quebec; national secretary, W. N. Hendrick, 2901 Bloor St. W., Toronto 18, Ont.; for registrations, T. G. Sevigny, Room 100, 355 McGill St., Montreal 1, Quebec.

July 18-20—American Poultry Congress & Exposition; Municipal Auditorium, Minneapolis; Don M. Turnbull, sec., American Poultry & Hatchery Federation, 521 E. 63rd St., Kansas city 10, Mo.

July 24-28 — Southeastern Egg Quality and Grading School; Auburn University, Auburn, Ala.; sec., Southeastern Poultry & Egg Assn., Harold E. Ford, 235 E. Ponce de Leon Ave., Decatur, Ga.

Aug. 24-26 — North Carolina Feed Manufacturers Assn.; Virginia Beach, N.C.; sec., McNair Evans, Box 44, Mocksville.

Sept. 19-21 — Marketing Seminar for Feed Manufacturers; Morrison Hotel, Chicago; Sales Executives

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SOME MASCOT—"Shelley," familiar to readers of Shellbuilder Co. advertisements, suits up for a practice session of a Shellbuilder-sponsored baseball team. With her on the right is Gilbert Reyna, team manager. On the left is Fred Gaines, Shellbuilder sales manager. Competing in a Houston softball league, the team had a record of 10 wins and 5 losses during the season. Losses, the team believes, could have been cut to zero if Shelley had been on the roster. (Editor's note: At least losing could have been a lot more fun.)

Council, American Feed Manufacturers Assn., W. E. Glennon, president, 53 W. Jackson Blvd., Chicago.

Sept. 27-29—Pennsylvania Millers & Feed Dealers Assn.; Hotel Hershey, Hershey, Pa.; sec., D. W. Parke, P.O. Box 329, Ephrata, Pa.

Oct. 22-24—Midwest Nutrition Conference; Hotel Muehlebach, Kansas City, Mo.; sponsored by Midwest Feed Manufacturers Assn.; executive vice president, Lloyd S. Larson, 20 W. 9th St. Bldg., Kansas City 5, Mo.

1962

Aug. 13-18—12th World's Poultry Congress; Show Grounds of the New South Wales Royal Agricultural Society, Sydney, Australia; Dr. Cliff D. Carpenter, chairman, U.S. Participation Committee, 1207 Emerald Bay, Laguna Beach, Cal.; Dr. A. William Jasper, secretary, c/o AFBF, 2300 Merchandise Mart, Chicago 54, Ill.

Joins Marketing Firm

DAYTON, OHIO—Charles M. Mears, formerly advertising and sales promotion manager of Henlein Bros. Co., Cincinnati, Ohio, has joined Creative Service Associates, Inc.

According to Don Butler, vice president of Creative Service Associates, Mr. Mears will be the creative coordinator for the marketing agency. Mr. Mears is a graduate of Ohio State University. He was with E. F. MacDonald in Dayton and was assistant to the director of advertising and sales promotion at Philip Carey Mfg. Co., Cincinnati, before joining Henlein.

All-Iowa Sheep Day Set for Nov. 15

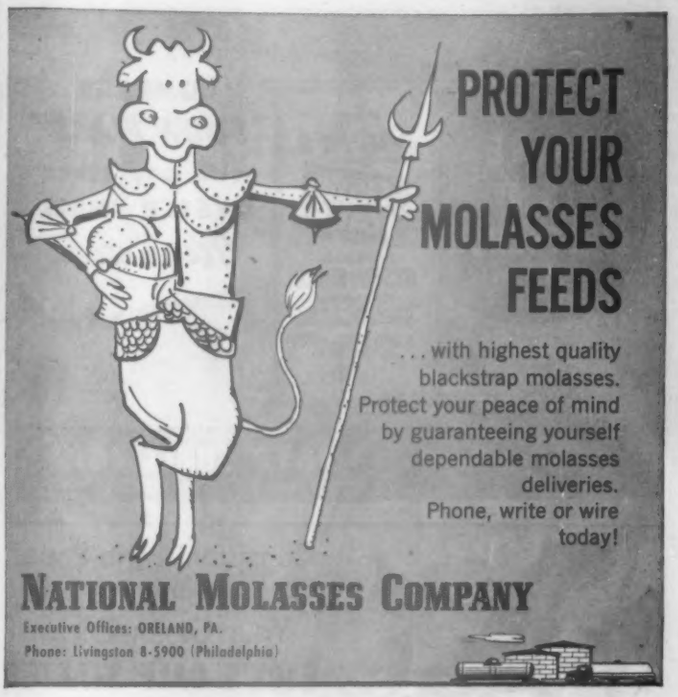
AMES, IOWA—Dr. U. S. Garrigus, sheep feeding authority from the University of Illinois, will discuss "The Future of Lamb Feeding in the Midwest" at the annual All-Iowa Sheep Day to be held at Iowa State University in Ames on Nov. 15.

The program this year will deal with lamb feeders' problems and new developments in lamb feeds. Animal husbandman Dr. Walter Woods of Iowa State will discuss the use of high-moisture corn for lambs, high-concentrate rations and feed additives for better efficiency in lamb feeding.

Other researchers will report on tests with pelleted feeds, enzyme supplements and the effect of fats in lamb rations.

Members of a panel that will discuss the problems facing the lamb feeder today include Otis Budlong, Cedar Falls, Iowa, secretary of the U.S. Department of Agriculture's sheep advisory committee; Eldon Kay, commercial feeder from Marne, Iowa; Dr. Fred Neal, college of veterinary medicine at Iowa State; Fred Roth, agricultural engineer; Everett Stonebert, agricultural economist, and Dr. Woods. Extension animal husbandman Tom Wickersham will moderate the panel.

At noon, the Iowa State Lamb Feeders Assn. will hold its annual meeting and election of officers.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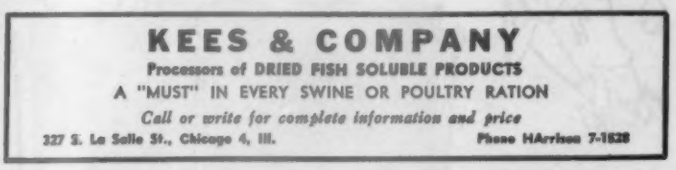
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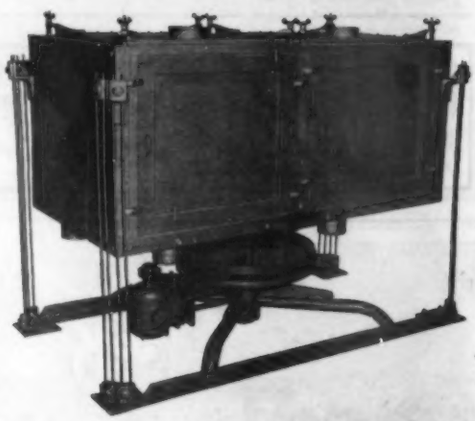

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NOR-VELL INC.
FORT SCOTT, KANSAS
"The Name That Means Better Sifting"

NEW SALT PLANT—Opening ceremonies were held last week for this new $2 million salt plant located in Williston, N.D. Production for the first year is set at 70,000 tons of salt. Peak capacity for the plant in a single year is 120,000 tons. The North Dakota firm, the Dakota Salt & Chemical Co., is an affiliate of General Carbon & Chemical Corp., Lake Forest, Ill.

Salt Plant Opened In North Dakota

WILLISTON, N.D. — The Dakota Salt & Chemical Co. held opening ceremonies last week for its new $2 million plant located near Williston. This plant, which is an affiliate of General Carbon & Chemical Corp., has a peak production capacity of 120 tons of salt per year.

All Dakota salt products will bear the name Perx, report company officials. Market area will be North and South Dakota, Montana, Wyoming, Minnesota, Iowa, Wisconsin, Colorado, Nebraska, Idaho and the Canadian provinces of Alberta, Saskatchewan and Manitoba.

The plant will operate 365 days a year, employing about 40 people initially. Production goal for the first year has been set at 70,000 tons of salt for industrial, agricultural and home use.

Salt from this plant is mined hydraulically; water is pumped into the salt strata over 8,000 ft. underground, and the brine which rises out of the well is then pumped into multiple vacuum evaporators where the water is boiled off.

Washington Man Pellets Cow Manure For Use in Nurseries

SNOHOMISH, WASH. — Pelleted, concentrated cow manure, processed for use in gardens and nurseries, has been brought out during the past summer by Floyd McKennon, local dairy man.

For years, dairy men milking large numbers of cows in congested areas near cities have been troubled with disposal of the manure.

Some effort has been made to dry the material, but Mr. McKennon has perfected a method of making it into pellets.

For several years, Mr. McKennon produced high quality dehydrated grass and clover for use in rabbit feed mixtures on his 1,400 acre farm but suddenly lost his market when midwest farmers got into the trade.

He then turned to dairy cows as the most practical users of the feed. More than 700 cows now spend their time eating green feed and yielding milk on the McKennon farm.

Then came the manure disposal problem. Mr. McKennon decided to turn the idle feed dehydrators into manure dryers.

Mr. McKennon now markets 22-23,000 lb. of milk daily through his three independent drive-in, self-service milk stores in Seattle and has a thriving sideline going in the manure business.

The cows are milked 28 at a time in a modified herringbone milk parlor. Most of them are Holsteins, and Mr. McKennon is rearing some 400 heifers to go into the herd as replacements.

Loafing sheds, where his milking herd spends most of its time, are bedded with planer shavings. The entire area is paved with concrete to keep the manure free of soil adulteration.

Each day the loafing sheds are scraped clean, and the manure is put into the dehydrator cylinder where it is heated to 1,200-1,300°. It goes through the cylinder in 2-3 minutes.

The manure is popped from the shavings by the extreme heat. The dry manure is put into a bin from where it goes to the pelleter. The shavings, which are as good as new except for being slightly discolored, are re-used for bedding.

About 8 tons of raw manure are required to produce a ton of pellets. Each cow will yield 4-5 tons of pellets per year and the total output of the herd will be around 3,000 tons of pellets per year, Mr. McKennon estimates.

The pellets contain around 1.55% nitrogen, 0.57% phosphorus, 0.89% potassium, 79.3% organic matter and 5.4% inert matter.

The high organic content is valuable in all small plant propagation, explains Mr. McKennon.

The pelleted material finds ready markets to commercial nurserymen at $55 per ton in 50-lb. bags, f.o.b. Snohomish, and will soon be available to home gardeners in 5-lb. bags.

ADDITION OKAYED

MANCHESTER, N.H. — Unity Feeds, Inc., has been granted a permit to construct a head-house on the roof of the firm's feed manufacturing plant, it was reported by the Manchester Building Department.

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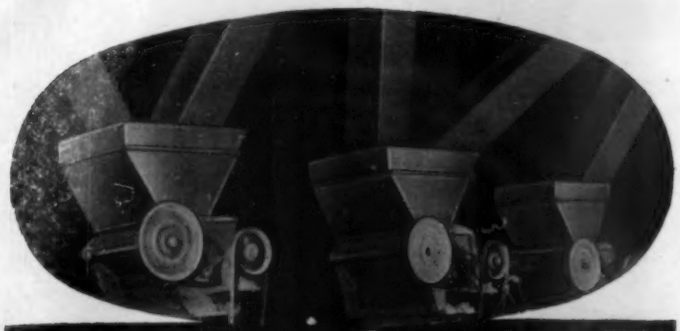

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Bulk Station and Farm Store Prove Good Investments

By Jess Blair
Feedstuffs Special Writer

When a new feeding area develops, feed companies located elsewhere may acquire some of this business in one of three ways.

They can service these customers by long distance feed deliveries; they can build a new mill in the area, or they can establish a bulk station and ship feed from the home plant.

The Albers Feed & Farm Supply, Modesto, Cal., is an example of the third method. The mill is located at Fresno, about 100 miles south, which is about the maximum distance a mill can serve customers by direct delivery.

"We would also miss something by not being in close contact with customers," said C. D. Ludden, manager of the Modesto station. "Then, too, we have developed a nice trade in livestock and poultry supplies here in our farm store."

The bulk station was built about seven years ago at a time when the San Joaquin Valley was developing into one of the major dairying centers of the West. Since then the company has gradually been increasing its dairy business, though the broiler and laying hen accounts have not been overlooked.

The station consists of 10 holding bins located on a railroad siding. Feed comes in by rail in bulk hopper cars, is dumped into a chute and is then carried by a bucket-type elevator to the holding bins, which have a total capacity of 460 tons. All feed is complete, and practically all the dairy feed is in pelleted form.

"We are now making a 5/32 in. pellet," explained Mr. Ludden. "Customers say that larger pellets are wasteful because too much dust or fines crumble off."

Feed is taken out of these overhead bins by the store's delivery trucks, one of which can carry 22 tons by using both truck and trailer. By having trucks with as many as five compartments, feed can be delivered to several customers at one time.

Dairy men often use a 16% pellet, but this varies because they also use quite a lot of alfalfa hay, corn silage and pasture. Since the ration must be balanced, not many dairy men have their own feed mills.

Service Man's Job

"Our service man, Mr. Parks," explained the manager, "goes to these farms and gets samples of hay and grass, then sends them to the company's laboratory at Oakland where they are analyzed. From those reports he can then make up a formula for each customer and we manufacture a special feed for cows."

Other duties of the serviceman are to help with problems of sanitation and feeding methods. The store has a special calf program which starts when the calf is weaned, or even before, and continues until it is put into the milking stanchions. The company is feeding several thousand calves, in addition to a large number of dry cows and bulls.

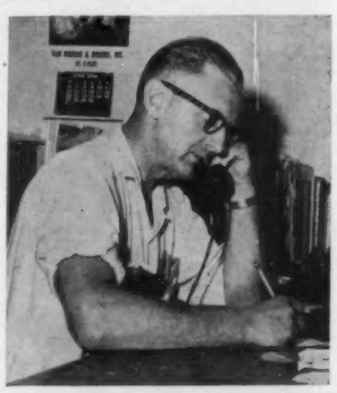
This type of service program is costly and can be justified only when the company has a large sales volume. It first started when some mill offered a few services, then other mills had to follow. As more and more field service was offered, every firm doing business with dairymen and poultrymen began to hire nutritionists to help with management problems.

"In an area of this kind, it is no longer enough just to make a good feed," said Mr. Ludden. "We are trying every possible way to help our customers produce more milk at a lower cost. Of course feed is the main item in such a program, so we are doing a lot of testing on various formulas."

The company has also become quite interested in the effects of insecticides sprayed on alfalfa and now has a testing program in its Oakland laboratory. This produces no immediate source of revenue but is building good will among customers and may help solve the problem.

The Albers Feed & Farm Supply has done very little financing except for feed. This is usually for 30 days and seldom more than two months. Most dairy men, when buying more cows or enlarging their plants, borrow money from the large milk companies or banks.

Most customers live within a 50-mile radius of Modesto, which makes the large delivery trucks most economical. Dairymen usually have 5-10 ton bins near the barn and take feed out in small carts. A few of the larger dairies now have automatic



MANAGER—C. D. Ludden, manager of Albers Feed & Farm Supply, Modesto, Cal., oversees all operations and supervises the three field servicemen.

BULK STATION, STORE—This is the Albers bulk station and farm store in Modesto, Cal. The firm caters to several types of feeding, with dairying predominating.

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PACO is the superior Molasses Distillers Dried Solubles — nutritionally sound, palatable to stock and just about the *best pellet binder* you can buy! Paco is the ideal fortifier to add to your feed formula, provides balanced protein, B-vitamins, essential minerals plus unidentified growth factors. Compare 'em all—you'll choose Paco!

NATICO is the richest dry molasses product available! Add it to your feed for more profitable production and more *economical feeding costs.* Natico is an all sugar cane molasses product, adds attractive new color and fragrance to feeds . . . even makes dry home-grown grains and roughages tastier to livestock. Try Natico and watch feeding costs go down!

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Let us prove Publicker's superiority in farm feeding products. Fill in coupon and attach to your company letterhead. We'll send you free samples of Paco and/or Natico . . . America's finest products for farm feeding!

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☐ send Paco sample
- ☐ 2-oz.
- ☐ 2-lb.
- ☐ 10-lb.
- ☐ 50-lb.

☐ send Natico sample
- ☐ 2-oz.
- ☐ 2-lb.
- ☐ 10-lb.
- ☐ 50-lb.

NAME_____

COMPANY_____

ADDRESS_____

CITY_____ ZONE____ STATE_____

FORK LIFT TRUCK—An employee of the feed firm operates a fork lift truck at Albers Feed & Farm Supply.

feeding equipment and storage bins that will hold many tons.

"One of my jobs is to check each bin when visiting a customer," said Mr. Parks, the outside salesman. "If it is getting low, I turn in an order to the office. One of the things we dread most is to have a customer call in and say his feed bins are completely empty."

Throughout most of this area, the size of dairies is continually growing. Whereas, the small 30-40-cow herds were once common, there are several of 200-400 cows now. Mr. Ludden says that, within a few years, herds up to 1,000 or more will not be uncommon.

Good Feed Service

"We try to hold these larger dairies by giving them a good feed at a competitive price and then matching this with a field service of equal quality," said Mr. Ludden.

The firm has found the farm store to be quite profitable. Arranged for self service, it requires very little extra labor and is a means of selling each dairy customer many items he might buy elsewhere.

UNLOADING TRUCK — Here feed is being unloaded and will be taken by auger into the holding bins at the right. Most feed is shipped in by rail.

Since the company also has a growing business in feeding broilers and laying hens, many poultry supplies can be sold to these flock owners.

"We also have some town trade," said Mr. Ludden, "but mainly we are in the business to sell feed and cater mostly to the livestock and poultry feeders. And because of the keen competition, we must put forth 100% effort all the time in order to hold our old customers and gain a few new ones."

Animal Conference Speakers Announced

MT. VERNON, WASH.—Program details for the 13th annual Washington Animal Industry Conference, to be held at Skagit Valley College in Mt. Vernon on Nov. 14-15, have been announced. The conference is sponsored jointly by Washington State University and the Washington State Feed Assn.

Some reports to be presented at the meeting include: "Economy of Pelleting Feeds for Ruminants," Dr. I. A. Dyer, department of animal science, Washington State University; "Energy Nutrition of Poultry," Dr. F. W. Hill, department of poultry husbandry, University of California; "How Feeds Affect Milk Composition," Dr. T. H. Blosser, department of dairy science, Washington State, and "Factors Influencing Antibiotic Usage in Feeds," Dr. James McGinnis, department of poultry science, Washington State.

On Nov. 15, Gordon E. Bearse, poultry scientist at Western Washington experiment station, will discuss "The Problem of Egg Shell Quality," and Dr. Hill will discuss "Soybeans and Soybean Products in Feeds." Also, Jacob Biely, department of poultry science at the University of British Columbia, Vancouver, will report on the "Highlights of Nutritional Research at U.B.C."

On both days, research briefs will be presented, including such subjects as "Use of Full-Fat Soybeans for Growing Turkeys," "Fish Meal for Broiler Feeds," "Calcium and Phosphorus Requirements of Developing Turkeys," "Enzymes and Kelp for Cattle," and "Nutritive Value of Milk Replacers Containing High Levels of Whey."

The meeting will adjourn at noon, Nov. 15. Program chairmen are Gomer Lague, Van Waters & Rogers, Inc., Seattle, Wash., representing the feed industry, and Dr. Leo S. Jensen, department of poultry science at Washington State, representing the university.

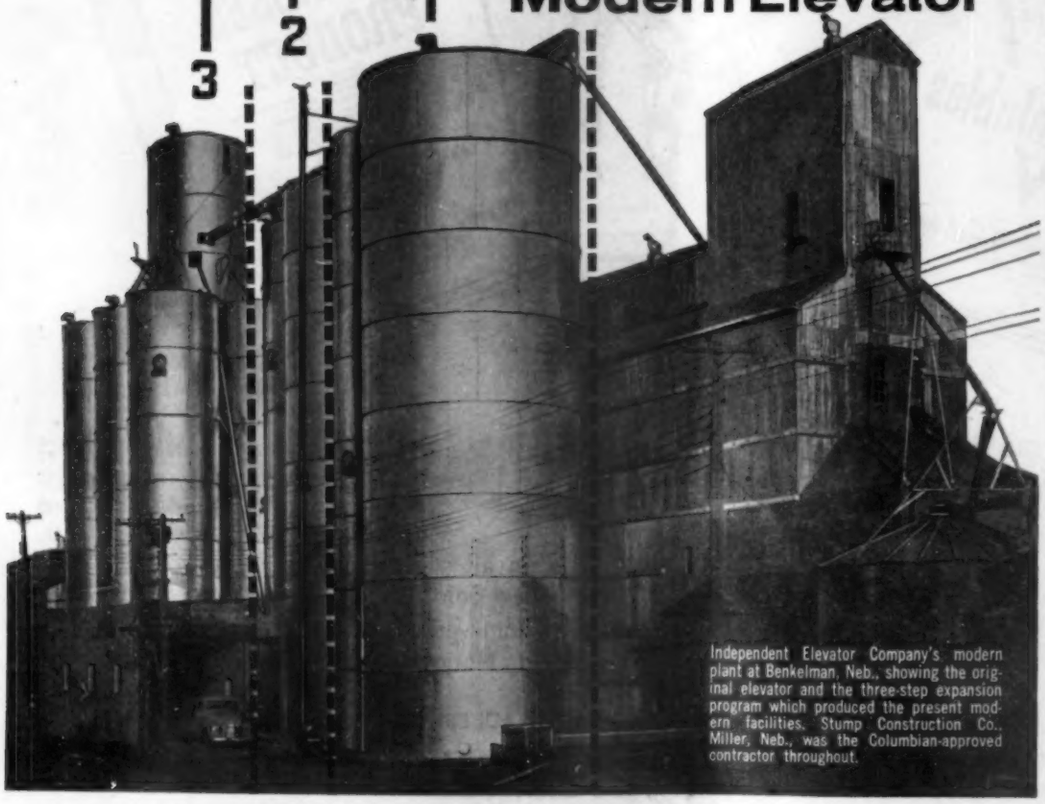
Promoted at Wirthmore

WALTHAM, MASS.—Roy Rardin is now district sales manager for northwest and central Ohio for Wirthmore Feeds, Inc., it was announced by Sumner Claverie, division sales manager.

Mr. Rardin is known in Ohio poultry circles. He has been employed by Wirthmore since 1956, developing poultry feed sales in western Ohio.

3-Step MATCHED EXPANSION

Built this Profitable, Modern Elevator



Independent Elevator Company's modern plant at Benkelman, Neb., showing the original elevator and the three-step expansion program which produced the present modern facilities. Stump Construction Co., Miller, Neb., was the Columbian-approved contractor throughout.

with BOLTED STEEL TANKS

MASTER-CRAFTED BY COLUMBIAN SINCE 1893

Independent Elevator Co. of Benkelman, Neb., believes in keeping pace with growing business and growing demand for modern elevator service. Columbian Bolted Steel Tanks and Columbian grain handling equipment—plus Columbian "Look Ahead" engineering—were the easy, practical, economical answer to Independent's expansion and modernization needs. The result—a completely profitable and modern elevator, equipped to serve an ever-growing customer list speedily and efficiently.

Starting with an old country elevator, still in use, Independent added (1) two modern Columbian 15' x 48' tanks. Two more (2) matching units were added later and, in 1959, the profitable operation of this expanded plant called for additional storage (3), a new headhouse and modern blending and classifying tanks over an enclosed driveway. This modernization, by meeting present day demands, protects the company's storage investment.

It pays to plan ahead—and to choose Columbian bolted steel tanks, Big Bins or Tall Tanks for any expansion, because their economy, speed of erection and versatility make future expansion more practical and profitable. Columbian-approved contractors and distributors will be glad to assist you with your expansion and modernization plans.

Write today for FREE Columbian Bolted Steel Tank, Big Bin and Tall Tank Folders and Columbian-approved contractors in your area.

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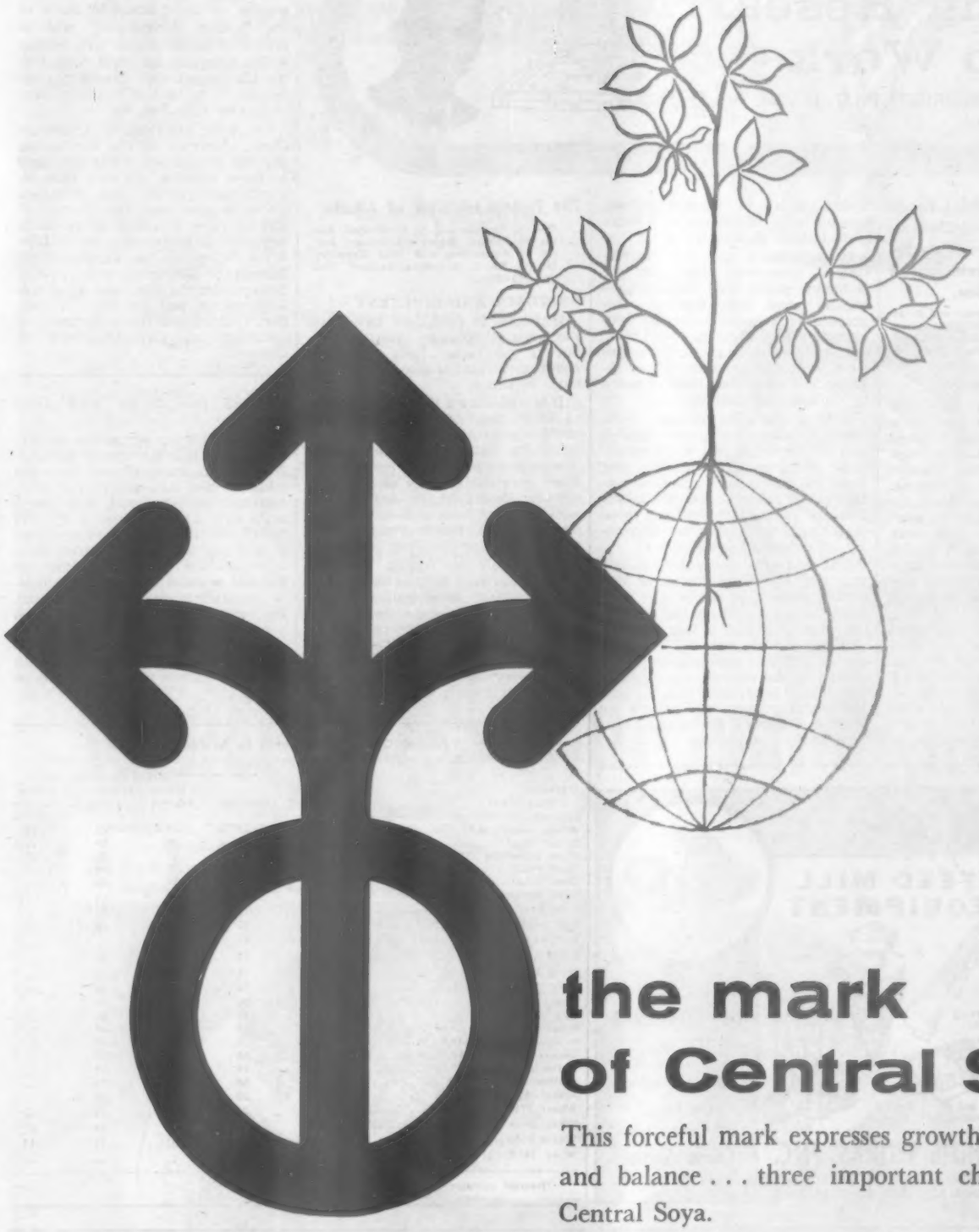

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This forceful mark expresses growth, diversification and balance . . . three important characteristics of Central Soya.

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Putting Research To Work

BY SPENCER H. MORRISON, PH.D., D. V. M.

Cystine Content of Proteins, Foods and Feeds. Comparison of Chromatography on a Sulfonated Polystyrene Resin and Microbiological Methods of Determination.

● R. J. Evans, S. L. Bandemer and D. H. Bauer, Michigan State University; Journal of Agricultural and Food Chemistry, Vol. 8, No. 5, September-October, 1960, pp. 383-386.

ABSTRACT AND COMMENT

Cystine determination has been complicated by the fact that it is necessary to hydrolyze protein-bound cystine by acid hydrolysis or by some other method. Some of the cystine is destroyed during such treatment. Also, whether the method used for analysis of the unknown is the newer chemical method or the more standard microbiological technique, results have often been rather erratic and many informed authorities consider that many of the published values are inaccurate.

The Michigan workers investigated the cystine contents of a number of proteins, foods and feeds by chromatography after oxidation to cysteic acid in comparison with three microbiological methods. The microbiological methods used a lanthionized casein medium after 30 minutes of hydrolysis or an oxidized peptone medium after 30 minutes or 6 hours of hydrolysis by autoclaving.

It was shown that the microbiological procedures which used the 30-minute period for hydrolysis gave higher values than the chromatographic methods, but the results were quite erratic. On the other hand, most of the values obtained by the microbiological assay from the 6-hour digests were lower than those obtained by the chemical method.

It is of value to feedmen to be aware of values for cystine since it may substitute for part of the methionine requirement in poultry and swine rations. A comparison of certain values from the 1960 Feedstuffs Analysis Table by Hubbell and those from the present paper are interesting. (See accompanying table.)

It is obvious from the above figures that we need more studies of this nature as there are rather large variations in some of the major ingredients commonly used in feed formulas with the various methods of cystine analysis. This is especially true with respect to the microbiological methods. Also, it is apparent that the 1960 Hubbell values are somewhat low for most of the cereal grains and cereal by-products shown above.

The Trypsin Inhibitor of Alfalfa.

● J. S. Ramirez and H. L. Mitchell, Kansas Agricultural Experiment Station; Journal of Agricultural and Food Chemistry, Vol. 8, No. 5, September-October, 1960, pp. 393-395.

ABSTRACT AND COMMENT

Inhibitors in feedstuffs have been the cause of sporadic investigations, but as yet rather little is known about their composition and actual mode of action.

It is well-known that high amounts of alfalfa meal of certain types will produce growth inhibition in poultry, especially young chicks and poults. The amounts required to produce this effect vary considerably according to growing conditions, processing, etc., and have not been well-defined, but usually at least 5-10% or more in the total ration are the levels necessary.

Conceivably a trypsin inhibitor could be partially responsible for part of this effect. Investigation of this possibility would require the isolation of the inhibitor in sufficient quantity for actual chick studies. The Kansas workers have been successful in isolating a trypsin inhibitor from alfalfa meal by extraction with water, dialysis and precipitation with ethyl alcohol.

The studies concerning the properties of the isolated trypsin inhibitor from alfalfa meal showed that the inhibitor was non-competitive, inactivated slowly by heat, and amino acids were liberated from it by acid hydrolysis. The study indicated that it was probably a polypeptide or a noncoagulable protein. Whether or not this isolated compound is actually involved in inhibition of chicks, etc., will have to be determined as yet. It will be necessary to learn also whether or not the inhibitor is altered in the crop or gizzard in such a manner that it might no longer be active.

Delaney Amendment Topic for Meeting

KANSAS CITY—A special symposium on the "Scientific Basis of the Delaney Amendment" will be presented by the Kansas City section of the American Chemical Society at the 12th annual Fall Chemistry Conference to be held at the University of Kansas City Nov. 18.

Dr. Dan MacDougall, Chemagro Corp., chairman of the symposium, said the amendment will be discussed by three speakers, one each from industry, government and education. Those persons are: Dr. Thomas P. Carney, vice president of research, development and control for Eli Lilly & Co.; Robert S. Roe, director of the Bureau of Biological and Physical Sciences for the Food and Drug Administration, and Dr. Paul R. Cannon, chairman of the department of pathology at the University of Chicago.

Percent Cystine—Calculated to As Fed Basis

Ingredient (% protein)	1960 Hubbell*	Michigan values: Chemical	30 min.—peptone	30 min.—casein	6 hr.—peptone
Alfalfa meal (18.9)	.35	.17	.13	.15	.08
Barley (9.6)	.18	.22	.20	.26	..
Dried buttermilk (30.8)	.37	.22	.31	.46	.25
Corn (10.3)	.10	.16	.19	.18	.14
Corn (10.8)	.10	.22	.19	.26	..
Corn fermentation solubles (25.7)	..	.59	..	..	..
Cottonseed meal (41.5)	1.00	.91	.71	.75	..
Fish meal (60.4)	.63	.42	.66	.78	.42
Fish meal, menhaden (61.9)	.63	.43	..	..	..
Millet (14.0)	..	.24	.13	.27	..
Mung bean (24.3)	..	.15	.17	.15	..
Oats (11.7)	.18	.26	.34	.35	.21
Pea bean (24.0)	..	.26	.14	.29	..
Rice (6.6)	..	.15	.19	.22	..
Soybean oil meal (49.4)	.68	.59	.64	.69	..
Soybean oil meal (49.4)	.68	.74	.79	1.04	.54
Soybean oil meal (52.1)	.68	.63	.78	.89	.47
Sudan grass seed (10.3)	..	.14	.15	.14	..
Sunflower seed (30.9)	..	.50	.59	.71	..
Wheat (9.9)	.18	.21	.23	.28	..
Wheat (11.8)	.18	.22	.25	.26	.16
Wheat bran (14.3)	.19	.19	.33	.36	.17
Wheat middlings (16.6)	.19	.23	.31	.31	.18
Whey (41.4)	..	.25	..	..	..

*Nearest corresponding values.

Jacobson QUALITY FEED MILL EQUIPMENT

JACOBSON HAMMERMILLS
AJACS Quick Screen Change
UNIVERSAL Quick Screen Change
AJACS-O-MATIC Remote Screen Change

JACOBSON MACHINE WORKS, INC.
Nearly a Half Century of Service to the Feed Industry
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Yours, when its formulated with Sunflower Brand soybean meal! Item: Sunflower Brand starts with the *best* soybeans grown. Item: we "cook" them by a special process to develop highest palatibility and digestibility. Item: Guaranteed OVER 44% protein. Get the complete story from:

Kansas Soya Products Co., Inc.
Phone Dickens 2-7270 Emporia, Kansas

Profit item for millers: dependable *on-time* delivery from our mill to yours.

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Any feed will show better results when you add Seagram Dried Grains—because this 85% TDN supplement is packed with essential proteins, fats, minerals, B-vitamins and other vital growth factors. Scientists, feed dealers and farmers have seen its power performance again and again. If you want your customers to get more milk and butterfat from their dairy herds, make sure your formula includes Seagram Dried Grains, the feed additive naturally enriched by yeast action! Order a supply today!

to get MORE milk and butterfat

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Member Distillers Feed Research Council

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UNIQUE CHEMI STRUCTU ...NEW TYPE OF ANTICOCCI ACTIVITY

*TRADEMARK OF MERCK & CO., INC. FOR ITS BRAND OF AMPROLIUM © 1960, MERCK & CO., INC.

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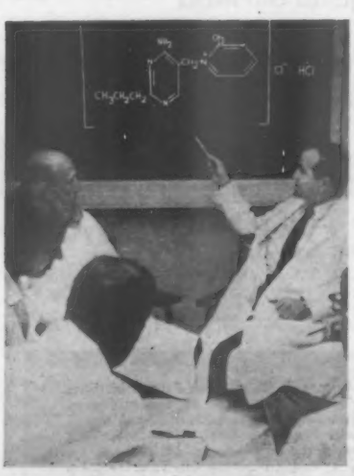

NOW...FROM THE LEADER IN COCCIDIOSIS RESEARCH

Carefully selected from a massive screening program involving thousands of compounds, AMPROL combines a highly desirable balance of efficacy and safety. It shows promise of being a truly effective coccidiostat for use in broiler feeds. This latest addition to the Merck family of coccidiostats is really new and has undergone intensive study and testing, using the most advanced methods. It is the first coccidiostat evaluated against seven species of chicken coccidia.

UNIQUE ANTICOCCIDIAL ACTION

The chemical structure of AMPROL differs completely from that of any other coccidiostat—it is similar to that of thiamine. At recommended use levels, AMPROL appears to interfere with the thiamine metabolism of the coccidia, but does not affect the normal thiamine metabolism of the chicken. This mode of action is entirely different from that of any other coccidiostat in the industry's history.

SIGNIFICANT COMMERCIAL ADVANTAGES

The value of AMPROL can be measured by its efficacy and its favorable margin of safety . . . plus the fact that it permits attractive weight gains and feed conversions. What's more important, tests to date have not shown any significant ability of coccidia to develop resistance to this compound—an indication of a most promising role for AMPROL—in the management of coccidiosis—for years to come.

EFFICACY

AMPROL exhibits important activity against the most significant coccidia—especially *Eimeria tenella* and *E. necatrix*. Carefully checked against *44 strains of seven coccidial species*, AMPROL has demonstrated a favorable pattern of performance under a variety of conditions.

And in laboratory comparisons with *mixed* infections of cecal and intestinal coccidiosis (*E. tenella*, *E. necatrix*, *E. acervulina* and *E. maxima*), AMPROL *gave more protection than other coccidiostats.*

PRODUCTION PERFORMANCE

AMPROL has permitted excellent growth and feed efficiency. Results of a year of experiments under practical, commercial-type conditions have substantiated the laboratory findings.

Compared with controls, broilers on AMPROL showed higher final weights, with favorable feed conversions.

CONSISTENT PERFORMANCE

In the tests, birds were exposed to four consecutive generations of ten virulent strains of *E. tenella*. This "killer" coccidial species did not develop significant resistance to AMPROL. Based on these and subsequent tests, it is anticipated that AMPROL will give consistently good protection under most field conditions.

SAFETY

AMPROL is well tolerated up to four times its suggested use level of 0.0125%. Side effects noted above a 0.05% level are specifically related to thiamine-depletion, and are quickly reversible by giving thiamine. This simple corrective procedure is unique with AMPROL.

Layer and breeder feeding trials indicate that recommended use levels of AMPROL will not affect egg quality, egg production or hatchability.

No toxicity is observed when feeds containing AMPROL are fed to cattle, sheep, swine and dogs.

USE LEVELS

The recommended use level for most field conditions is 0.0125%; where adverse conditions and less sensitive strains of coccidia prevail, the 0.025% level should be employed.

FURTHER INFORMATION

Reference data on the use of AMPROL in broiler feeds are available in a technical service bulletin.

For more details, or to place your initial order, contact your Merck representative or write to Agricultural Products, Merck Chemical Division, Merck & Co., Inc., Rahway, N. J.

Amprol® *(amprolium)* MERCK

DISTILLERS FEEDS *belong* IN THIS PICTURE . . .

Up to 25% increase in daily gains

GFF
Grain Fermentation Factors

DISTILLERS DRIED SOLUBLES

- Protein 24-30%
- Fats 5%
- Mineral 6%
- T.D.N. 85%
- B Complex Vitamins Growth Factors

PIG rations fortified with Distillers Dried Solubles produce daily weight gains, up to 25% over normal, with an increase of 5% in feed efficiency. Moreover, the pigs required two weeks less time to reach market finish.

Sows fed Distillers Dried Solubles during the suckling period, produced stronger, healthier, heavier pigs with a marked decrease in the mortality rate.

The secret, of course, is in the important water-soluble vitamins and other growth factors which Distillers Dried Solubles provide.

For information on swine rations fortified with distillers feeds write Distillers Feed Research Council, 1232 Enquirer Bldg., Cincinnati, Ohio.

DISTILLERS Feed Research COUNCIL

James B. Beam Distilling Co., 65 East South Water St., Chicago 1, Ill. ✱ Brown-Forman Distillers Corp., P. O. Box 1080, Louisville, Ky. ✱ Double Springs Distillers, Inc., 70 Scollay Square, Boston 8, Mass. ✱ Fleischmann Distilling Corp., 625 Madison Ave., New York 22, N. Y. ✱ Glenmore Distilleries Co., P. O. Box 900, Louisville, Ky. ✱ Grain Processing Corp., 1600 Oregon St., Muscatine, Iowa ✱ Kentucky River Distillery, Inc., Brook & Eastern Parkway, Louisville 8, Ky. ✱ Medley Distilling Co., P. O. Box 548, Owensboro, Ky. ✱ Barton Distilling Co., Bardstown, Ky. ✱ Merchants Distilling Corp., 1 North La Salle St., Chicago, Ill. ✱ Midwest Solvents Co., Inc., 1300 Main St., Atchison, Kan. ✱ Mt. Boston Distiller, Inc., 1010 Massachusetts Ave., Boston 18, Mass. ✱ National Distillers Products Co., Grain Products Sales 99 Park Ave., New York 16, N.Y. ✱ Schenley Distillers, Inc., 26 E. Sixth St., Cincinnati 2, Ohio ✱ Joseph E. Seagram & Sons, Inc., Grain Products Division, 375 Park Avenue, New York 22, N.Y. ✱ Stitzel-Weller Distillery, Inc., Sta. D, Louisville, Ky. ✱ Hiram Walker & Sons, Inc., Peoria 1, Ill.

Details of New SBOM Futures Contract Told

By Special Correspondent

CHICAGO — Details of a "new style" soybean meal futures contract which is designed to furnish improved hedging facilities have been announced by the Chicago Board of Trade (Feedstuffs, Oct. 15).

The Board of Trade has recently opened such futures trading in that commodity under Regulation 2066. Certain changes in billing are set forth in the regulation.

The regulation, in full, follows:

"All loadings of soybean meal against soybean meal shipping certificates shall be in bulk, free on board cars, basis Decatur, Ill. Shipment from delivery point shall be via railroad and shipper shall prepay freight to owner's destination.

"When declared destination is in official territory (viz: Destinations in the U.S. east of a north-south line from Madison, Ind., through Muncie to Howe, Ind., thence due north to the Canadian border; and on and north of the Ohio River from Madison, Ind., to Kenova, W. Va., thence on and north of the main line of the Norfolk & Western R.R., to Norfolk, Va., including the Virginia Cities Gateways), which may include routing via the Detroit Gateway when requested, shipper shall prepay freight, charging owner the lowest lawful carload freight rate on bulk soybean meal from Decatur, Ill., to Boston, New York, Philadelphia, Baltimore or Norfolk rate points, whichever is designated by owner. When declared destination is in eastern Canada, shipper shall prepay freight, charging owner the lowest lawful carload freight rate on bulk soybean meal from Decatur, Ill., to any Canadian destination east of Windsor.

"When declared destination is in other than the territory defined in the preceding paragraph, there shall be no obligation on the part of the shipper with regard to freight rates, and freight charges, as determined by shipper, shall be charged to the owner."

Officials of the Chicago Board of Trade felt that these contract changes were required as the result of a combination of a number of different things: (1) The consistent expansion of the soybean producing area; (2) the building of soybean processing plants away from what has long been known as the "heart of the bean belt," and (3) changes in the freight rate structure. The destination territories spelled-out under the terms of the "new style" contract, according to the board, represent an area to which is shipped a very heavy percentage of all the soybean meal carried by rail in the U.S.

Feed Dealers Meet

GREAT FALLS, MONT.—An optimistic view of the future of livestock feeding in Montana was given by J. W. Weymer, manager of the Swift & Co.'s feed division for California and the Northwest, at a recent meeting of about 20 Swift feed dealers from Montana.

Host at the dinner meeting was Mountain States Feed and Livestock Co., Inc., of Great Falls, company president Thaine Wulf presided at the dinner.

During the day, J. A. Whitaker, vice president and general manager of Mountain States Feed and Livestock Co., conducted the Swift dealers on a tour of the larger feeding operations of the area.

Latest Rulings in Labor Relations

MAY EMPLOYER DISCHARGE WORKERS HIRED DURING A STRIKE ?
THANKS FOR HELPING US DURING THE STRIKE, AND HERE'S YOUR FINAL CHECK!
WHAT ?
AFTER RISKING MY LIFE TO WORK HERE, I GET THIS ?
SORRY, BILL!
THIS MAN HAS ONLY A FEW WEEKS SENIORITY!
I WANT DAMAGES !
ARBITRATOR'S DECISION
YES, STRIKE REPLACEMENT WORKERS ARE NOT ENTITLED TO PREFERENTIAL TREATMENT
Based on a 1960 Minnesota Decision

FORTIFY YOUR FEEDS WITH

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MINERAL STABLE D_2 AND D_3

Wisconsin Alumni Research Foundation — Approved for VITAMIN D upon periodic tests

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Protocols with all shipments—potency guaranteed U.S.P.

Product of N.V. PHILIPS-DUPHAR, the Netherlands
World's Largest Manufacturers of Vitamin D

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PURE VEGETABLE EXTRACT COLORS
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T.S. 3 for Greasetrap and Septic Tanks.
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Bakers' Specialties
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1900 West 96th Street, Cleveland 2, Ohio

How Feed Men Advertise—Part 3

News Angle Helps Make Advertising Copy Interesting

By Al P. Nelson
Feedstuffs Special Writer

Every feed merchandiser who spends hard-earned, cold cash for advertising of any kind, wants that ad copy to be seen and read. If it isn't, obviously the money spent does not bring returns. Making advertising copy interesting to read involves writing techniques, one of which is to inject a news angle.

People are always interested in news. If you are making a new type of feed and have just introduced it, that is news. If you are slashing the prices on some feed, that is news to farmers. If you install new machinery, or expand your mill or offer some additional service to farmers, that is news.

Likewise, if you publish a feeding record showing that some egg producer got a bigger egg production from his flock at a lower per dozen cost through use of your feed, that is news, too.

If you mention customers' names in certain news items and also have a personal column of comment about feeds, farming and general community events, that also is news. All these elements will arouse a certain amount of interest and increase the readership of your ads.

Here are a few case histories of what some feed men are doing in the way of newspaper copy.

Personal Column

Henry and Robert Summers, who operate Summers Elevator Co., Fayette, Mo., and also branches at Armstrong and Bonneville, Mo., like the personal column type of advertising. The column, mostly written by Henry Summers, is entitled "Just Poppycock." It contains dates of various farm events, comments about crop feeding services, etc. The column has a great deal of personal interest, because so many farmers know the Summers family and trade with them.

Off and on, too, the Summers firm will publish a complete feeding record from some customer, and this is specific proof of the results of the feed the firm sells. Mr. Summers works very closely with his local newspaper publisher and receives excellent suggestions from him about copy, layout, etc.

EDITOR'S NOTE: *This is the third in a series of five articles on advertising by various types of feed manufacturing, sales and service operations. The information was gathered during the past two years in interviews with several hundred feed manufacturers, custom mill operators, hatchery owners, mobile mill operators and feed store owners. Other topics to be covered include the use of direct mail by feed merchandisers to increase sales.*

The E. T. Van Buren & Sons Co., Hobart, N.Y., located in a rich dairy area, sets up its newspaper ads under a title. This title is "The VB News" with the subtitle reading: "A synopsis of news and views of the feed, coal, hardware, lumber and farm machinery business of the E. T. Van Buren & Sons Co."

Such a typographical setup makes the Van Buren ad stand out in the newspaper very clearly from all other ads. Although Bill Van Buren who writes the ads spends 25% of his ad budget in newspapers, and considers copy carefully, he uses prices, products and services in the copy and he often details his and other folks' interesting convention and vacation trips, too. Such copy adds personal interest to the firm's ads.

Sizeable Ads

Dexter Obenhaus of Community Feed Mill, Princeton, Ill., makes his own brand of Holsum Feeds and he advertises them extensively. He likes sizeable newspaper ads which feature pictures of his feeds being delivered to farms or used there. He once ran a sizeable ad with the only copy being "What Is A Customer?" and the art showed his mill and many pleased farmers reading customer philosophy.

When Orville Ingvaldson, owner of Geneva (Minn.) Grain & Milling Co., erected a new mill a couple of years ago, he increased his advertising appropriation about 50% and he finds that consistent advertising pays. About 65% of his budget goes for newspaper space, and he likes to use several one column 10 in. ads in the local paper, each stressing a different product or service. He believes the use of black type, along with short, to-the-point copy gets reader attention. He says he tried radio advertising, too, but without satisfactory results.

Verne Wehrle of the Montezuma (Iowa) Elevator says he spends about 1% on advertising, mostly newspaper and direct mail. He gets pretty good results from both, he advises.

Ernie Fauser, Fauser's Feed & Supply, Waterloo, Iowa, spends about 1% for advertising. In this budget he includes money spent for dinners for feeder meetings, etc. He uses newspaper and direct mail advertising,

DO YOU KNOW THIS MAN?

He stands head and shoulders above other egg producers . . . a conscientious flock manager who is satisfied with nothing less than Full Performance from his flock. His records show he shoots for, and often beats, FPI goals of 250 eggs per hen; 4.5 feed conversion; 90% laying house livability; and 90% Grade A eggs.

He is one of 3 men in your state who will be top winners in Hess & Clark's "Flock Manager of the Year" awards program. (One winner in each of 3 flock-size divisions: (1) 1,000 birds or less; (2) 1,001-3,000 birds; (3) more than 3,000 birds.) *He may be your customer.*

The "Flock Manager of the Year" competition is part of the Full Performance Index (FPI) program — Hess & Clark's newest industry-wide promotion that encourages flock managers to bring all vital egg-profit factors (feed, birds, flock health, housing and equipment) into balance. A sound, proven way to help your customers help themselves, FPI is a companion promotion to Hess & Clark's now well-known "Golden Goodness of Eggs" campaign — a program designed to increase egg consumption and improve prices.

Most likely you know several conscientious, business-minded egg producers. Urge them all to enter the "Flock Manager of the Year" competition. If one of your customers is a top award winner . . . or one of many merit award winners . . . he'll benefit from a strong, state-wide reputation as a top poultryman. You will gain extra business, extra sales. But hurry! Everyone entering must maintain records of flock performance for any 12-month period between Sept. 1, 1960, and Dec. 31, 1961. *All entries must be in before Jan. 31, 1961.*

Write for an FPI Awards Kit. It contains everything you need to get your customers started—entry blanks, rules and regulations, FPI record charts. A post card to the address below will bring your kit.

HESS & CLARK
ASHLAND, OHIO
Division of Richardson-Merrell Inc.

NT-6-8

we're putting on
WEIGHT
3/10 lb. per year
at 8 weeks

PETERSON
breeding farm
DECATUR, ARKANSAS

and also distributes copies of Checkerboard News.

Sauder's Feed Service, Tremont, Ill., uses newspapers in nearby Peoria and Bloomington, Ill., to advertise his special feed offerings. Both display advertising and classified are employed to tell of special grind, mix, pellet and delivery package deals. He also issues a once-a-month mimeographed bulletin to feeders in his area.

Vernon Badrick of Preston (Iowa) Feed Mill, one of the first feed mills in Iowa to install pelleting machinery (1947), spends about 2% annually on advertising. The firm advertises in two weekly newspapers, using about 50 per cent of the budget for this. Every two or three weeks the firm also sends 1,200 yellow, double s'de direct mail cards to farmers quoting products, prices and specials. These direct mail cards pull very well, too, says Mr. Badrick.

Stamper Milling Co., Moberly, Mo. which sells to many dealers in that area uses quite a few customer testimonial ads in newspapers circulating in dealer territory. Such ads usually contain several pictures of a customer and his flocks and herds with an accompanying statement that he is well satisfied with Stamper Feeds.

Midland Cooperatives, Inc., Waseca, Minn., found that newspaper advertising was effective when it opened a new plant last year. Copy offered free delivery of the first load of bulk feed ordered from the plant and there was much interest. The firm also does considerable direct mail advertising.

The Kewaunee, Wis., Cooperative Store uses local newspaper ads and also advertises quite regularly in a county shoppers' guide. C. J. Maccoux, manager, also issues a mimeographed bulletin to customers. This three way ad program produces results, he states.

Home Town Feed and Fuel, Mt. Horeb, Wis., likes to insert humor and personal interest in its newspaper ads. Copy may say "Our coffee pot goes on at 7 a.m." and this makes farmers chuckle. Another time the firm advertised it had the only fur fish in captivity. When farmers came to investigate, they discovered that the fish was a smoked one, with a piece of fur sewed to it. This provoked much merriment.

The feed merchandiser who will spend time in laying out attractive, readable newspaper advertisements, will find that these ads generally will produce results.

To Study Government Grain Operations

CHICAGO—A decision to form a 10-man task force on government grain operations was made recently by the country elevator committee of the Grain & Feed Dealers National Assn., meeting here. Leland Miller, Cedar Rapids, Iowa, chairman of the committee, is now forming the new unit.

"The mission of the task force," Mr. Miller said, "will include: (1) Assembly of all data bearing on the problems of the country elevator industry in storing and handling grain for the Commodity Stabilization Service; (2) preparation for future negotiations with government agencies as to terms of grain storage agreements and similar contracts; (3) analysis of the various ways in which government grain operations are, or may be, conducted to arrive at recommendations as to the best procedures in the public interest, and (4) direction of an information program designed to bring about a fuller understanding by the American public of the value and importance to the nation of the country elevator marketing system."

The country elevator committee was unanimous in its agreement that now is the time to file data, examples and information with the trade's government grain operations task force. The data will be evaluated later as to its use with Congress or in Uniform Grain Storage Agreement discussions.

The committee concluded that country warehousemen are better qualified than anyone else to evaluate whether government operated bin-site storage is more efficient than commercial grain storage.

"As a committee of Congress has said that government-owned storage is in the public interest, we must have all the facts at our disposal to prevent socialization of our industry," Mr. Miller said.

FEED FIRM MERGES

SNOHOMISH, WASH.—Merger of Ely Hardware and Snohomish Cash Feed Store here has been announced by Everett Ely, who has purchased the feed business from Jesse Beasley. Mr. Ely recently staged an open house to celebrate the merger and completion of construction of a new addition to his store building. Mr. Beasley is retiring from business.

SING PRAISES OF EGGS—During a recent "Golden Goodness of Eggs" campaign stop at the Indiana State Fair, Robert Hogue, executive secretary of the Indiana State Poultry Assn., presented hard-cooked eggs to the Lennon Sisters, singing stars of ABC-TV's "Lawrence Welk Show." Left to right, Kathy, Peggy, Janet and Dianne thought it was "egg-ceptionally" nice of Mr. Hogue to present them with the eggs. This promotion marked the 14th appearance of Hess & Clark's "Golden Goodness of Eggs" caravan since its inception more than a year ago.

DON'T KID YOURSELF

about the cost of building a new mill . . .

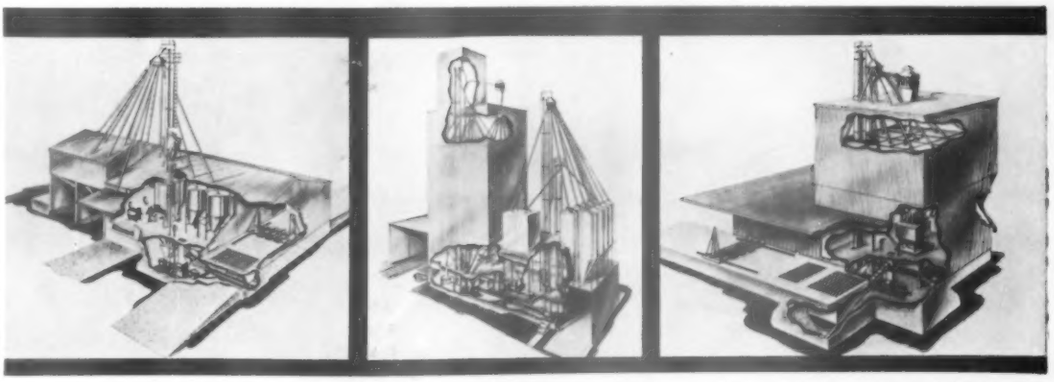
There's more than meets the eye in any mill construction project. Most people tend to think only in terms of the major pieces of equipment and the structure which houses them. That's why they rely on reputable engineers and contractors to plan each detail for them and furnish comprehensive cost quotations.

Unfortunately, some mill owners have found to their regret that the low bids they accepted from some contractors were low only because they were incomplete. The addition of such vital things as complete wiring and ductwork, motor starters, air cylinders, and countless other "minor" items sky-rocketed their costs after it was too late to do anything about them.

You wouldn't think of buying a new car without a starter, spark plugs, generator, or other similar equipment. But people actually do buy mills under much the same conditions, only to find out that they must come up with extra money before the mill will even run.

You can avoid this danger completely by asking us to bid on your next mill construction, expansion, or modernization project. All Myers-Sherman feed plants are engineered complete to every last detail . . . and *quoted* that way, too!

Best of all, this simple protection costs you nothing. We'll be glad to discuss your project with you, survey your requirements, and furnish recommendations without any obligation. Send for our free booklet that tells you all about our complete services today.



Myers-Sherman engineering experts create new and better mills of every type and size . . . from small custom mixing to full-scale manufacturing operations. We handle the entire job from start to finish . . . engineering, financing, and construction, or any part of it you wish. Choose one of 54 convenient purchase plans or even lease the entire installation!

Best of all, the quality and workmanship of every piece of Myers-Sherman equipment you operate is fully guaranteed and backed by the Myers-Sherman reputation for sound engineering design, quality workmanship and construction. When you call on Myers-Sherman you can count on getting the best mill for the money.

MS

MYERS-SHERMAN CO.

STREATOR, ILLINOIS

Phone: Streator 2-2176 *Established 1911*

MAIL THIS COUPON FOR COMPLETE INFORMATION

MYERS-SHERMAN COMPANY
3501 S. Illinois St., Streator, Illinois

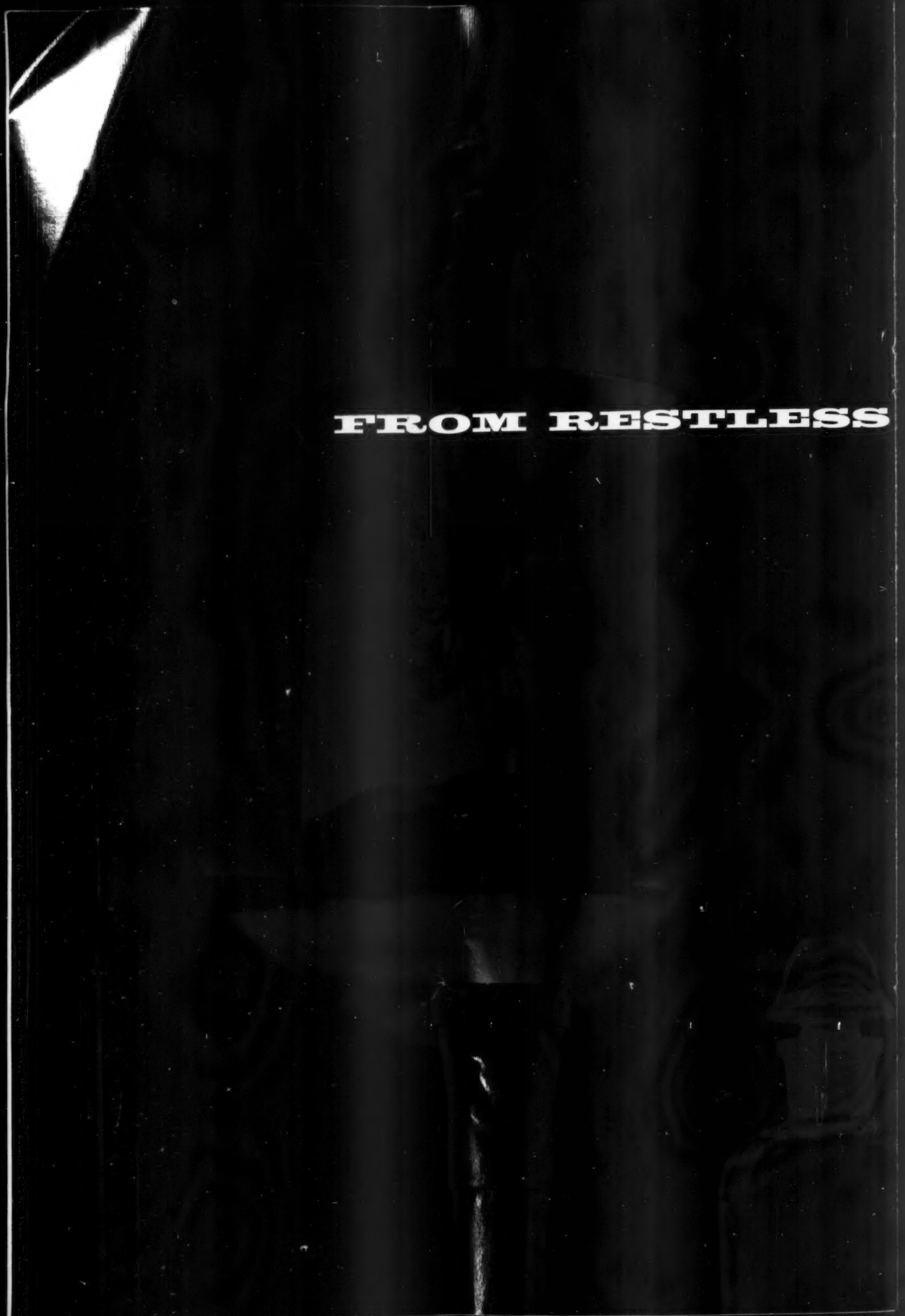
Please send me your free booklet on complete mill planning and construction services.

NAME_____

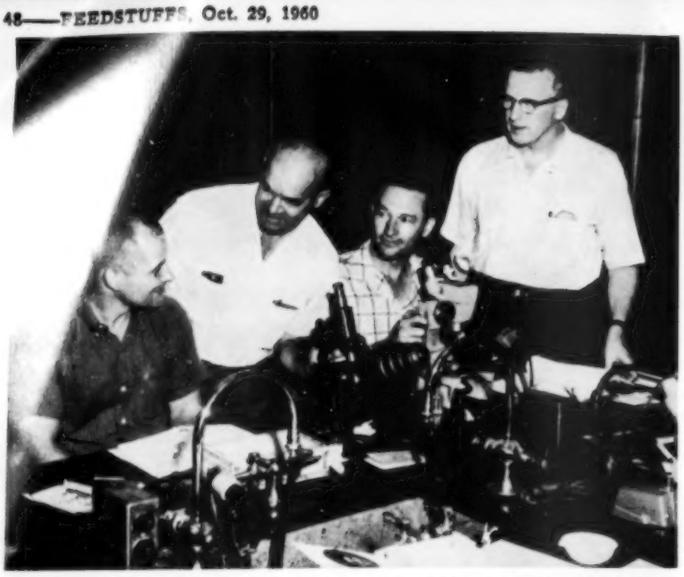
FIRM_____

ADDRESS_____

CITY_____ STATE_____


FROM RESTLESS

RESEARCH



QUALITY CONTROL—The use of microscopes to help control quality in feed was the subject of a short course held recently at the University of Missouri College of Agriculture. Getting instruction on using microscopes here are, seated, from the left: John Sheffer, Red Comb Pioneer Mills, Inc., Marshall, Mo., and John McClure, the Quaker Oats Co., Chattanooga, Tenn. Giving the instruction is G. M. Barnhart, Missouri State Department of Agriculture, Jefferson City. At right is C. W. Gehrke, professor of agricultural chemistry and chairman of the short course planning committee.

Feed Microscopy Short Course Held

COLUMBIA, MO.—Some fifty different feed ingredients were studied for physical structure under the low-power, wide-field microscope and for histological or cellular structure under the higher power compound microscope at the second annual Feed Microscopy Short Course held recently at the University of Missouri College of Agriculture here.

The event was held in cooperation with the Missouri State Department of Agriculture and was attended by students from the university and feed manufacturing personnel from five states.

It was stated that microscopic study "aids the analyst in detecting ingredients found in a mixed feed or detecting contaminants in individual ingredients or mixtures." A course in quantitative analysis of feeds was also offered.

It was stated that "Microscopy helps the analyst to interpret the chemical analysis of a feed. The feed may meet its guarantee from a chemical standpoint; but may be inferior from a nutritive standpoint. Only microscopy will show this without an actual feeding trial. This takes too long and is too expensive."

The microscopic workshop was supplemented by talks by: William L. Wyss, director, feed and seed division, Missouri Department of Agriculture, "Feed Law Problems"; Dr. Spencer, assistant state veterinarian, "Biological Contamination of Feeds"; Dr. A. A. Case, department of veterinary medicine and surgery, University of Missouri, "Feed Toxicity"; Albert J. Gehrt, Moorman Mfg. Co., Quincy, Ill., "Protein Digestibility (Pepsin) and Microscopy in Feed Formulation"; G. M. Barnhart, Missouri Department of Agriculture, "Feed Microscopy," and E. E. Brown, Texas Agricultural Experiment Station, "Problems Encountered by the Beginner," and "Feed Microscopy in Israel."

Mr. Brown spent two months last summer teaching microscopy in Israel. The banquet address was given by W. L. Bender, Eli Lilly & Co., Indianapolis, Ind., "Development of Microingredient Products."

The instructors were: G. M. Barnhart, chief chemist, and J. H. Dawson, laboratory assistant, Missouri State Department of Agriculture, Jefferson City, Mo., and E. E. Brown, research microscopist, State Chemist Office, Texas Agricultural Experiment Station, Texas A&M College.

The University of Missouri College of Agriculture and Texas A&M College are the only two colleges to offer such a course in feed microscopy, it was stated.

Information on future short courses is available from either Mr. Barnhart, Missouri Department of Agriculture, or Mr. Brown, Texas Agricultural Experiment Station.

New Livestock Feeds Introduced in Canada

TORONTO — Two new livestock feeds were introduced at the recent Shur-Gain Feed Conference of Canada Packers, Ltd.

A pre-starter for baby pigs, Shur-Gain Creep Feed, is designed to form another link in the company's Six Step Hog Feeding Program. Tests were conducted to find a feed that would be most palatable to baby pigs and also one they would start eating sooner.

A detailed report of field results on new Shur-Gain Warblerid over the past year was presented to dealers. "For the first time, a means of combating warbles simply, economically and effectively is available to farmers and ranchers through 'Warblerid'," officials said. "The active agent in the feed is a systemic insecticide that kills warble grubs in the animal's body before they can destroy tissues or hide. This new method of warble control could result in vast savings to the livestock industry in terms of dollars ordinarily lost through 'cut outs' and down grading and rejection of hides."

CANADIAN SPEAKER—Dick Hill, manager of the Shur-Gain division of Canada Packers, Ltd., in Edmonton, Alberta, adds a little western flavor to his talk at the Shur-Gain Feed Conference in Toronto by wearing a western hat.

A large delegation from Quebec, as well as groups from western Canada and the U.S., joined in the two-day school designed to assist mill operators in providing better and expanded service to their local farmer customers.

In addition to the introduction of two new feeds, those attending were brought up-to-date on the latest livestock and poultry feeding and management practices which are being tested on the company's demonstration farm.

The dealers also heard a report on "Animal Agriculture in the U.S.A.," given by W. L. Lavery, manager of Swisher Feeds, Danville, Ill. Dr. A. E. Ferguson, head poultry pathologist at the Ontario Veterinary College, discussed the latest information available on the control of poultry diseases. W. P. Watson, livestock commissioner, Ontario Department of Agriculture, presented his views on the economic future of Ontario's livestock industry.

Poultry Automation Iowa Meeting Topic

AMES, IOWA—Automation in the poultry house will be the topic for the annual Poultry and Egg Conference set for Nov. 3 at Iowa State University here. The program will begin at 10 a.m. in Memorial Union, according to Paul Walther, extension poultryman.

Leonard Graham, poultryman and mechanical engineer from Princeton, Iowa, will discuss automatic poultry operations.

The morning program will also include a discussion on the control of quality in the production and procurement of eggs, Mr. Walther said. George Stewart, chairman of the food and science technology department at the University of California, will explain the "official" and "unofficial" egg quality control programs.

The afternoon program will include talks on poultry management, breeding, products and stress. The poultry outlook for 1961 will be presented.

Effects of Canadian Ag Post Change Noted

OTTAWA, ONTARIO — The first major cabinet shuffle in Canada since the Progressive Conservative party took office three years ago was announced recently by John G. Diefenbaker, prime minister.

The change affected agriculture in that Douglas S. Harkness, minister of agriculture, was shifted to the national defense portfolio.

Alvin Hamilton, Saskatchewan, formerly minister of resources, takes over the Department of Agriculture, which leaves the portfolio in western hands. Observers point out that Mr. Hamilton was not an enthusiastic supporter of the deficiency payment method of price support, which his predecessor promoted.

Some observers also see the transfer of the Canadian Wheat Board operation from the Department of Trade and Commerce to the agriculture department as an indication that there may be a more sympathetic attitude toward eastern feeders, as far as grain movement is concerned.

FEED COMPANY SOLD

EXIRA, IOWA — Mr. and Mrs. Clyde Powers have purchased the Rosebud Feed Co. from Leon Milliman, it has been announced. Mr. Powers has been managing the business the past three years.

HEADS SALES COUNCIL—Robert D. Emmons, general sales manager, Wirthmore Feeds, Inc., Waltham, Mass., was elected chairman of the Sales Executives Council of the American Feed Manufacturers Assn. at the second annual marketing seminar held recently in Chicago (Feedstuffs, Oct. 1). The third annual AFMA feed marketing seminar has been set for Sept. 19-21, 1961, at the Morrison Hotel in Chicago with about the same meeting format as used this year.

Feed Conference To Be Held Nov. 4

RENO, NEV.—The 7th annual Nevada Feed Conference will be held Nov. 4 in the Education Auditorium on the Reno campus of the University of Nevada, Dr. Daniel W. Cassard, chairman, has announced. The program includes subjects dealing with feeding of both dairy and beef cows.

Registration will begin at 8 a.m. and the program is scheduled to start at 9 a.m. The program will be concluded at 4:30 p.m.

Staff members of the Max C. Fleischmann College of Agriculture scheduled to appear on the program and their subjects are: George Myles, agricultural economist, "How Large Should My Dairy Herd Be?" and James D. Schuh, extension dairy specialist, "Feeding Concentrates When Hay Prices Are High"; Dr. Edwin H. Jensen, agronomist, "1,000 Pounds of Beef per Acre from Irrigated Pasture," and Dr. Ray E. Ely, associate director, agricultural experiment station, "Research for Tomorrow's Agriculture."

William V. Neely, extension economist; Dr. Verle R. Bohman, chairman, animal husbandry department, and Mr. Schuh will appear on panel discussions in the program. Both the morning and afternoon sessions of the program will end with a panel discussion.

Out-of-state speakers scheduled to appear on the program will be announced as soon as confirmation of their appearance is received, Dr. Cassard said.

Hawaiian Blackstrap Production Declines

WASHINGTON — Hawaiian cane blackstrap production was 3 million gallons smaller in September than in August and 2.2 million gallons less than in September last year.

Shipments to the U.S. mainland in September also were sharply lower. September shipments were 1.9 million gallons below those in August and 2.2 million under shipments in September a year ago.

This year's production to date is about 6 million gallons less than during the first nine months last year. Shipments lag about 10.7 million gallons for January-September, 1960 as against the same period in 1959.

Sharp Increase Seen In Hatch for Laying Flock Replacements

UNIVERSITY PARK, PA.—Some observers are predicting a sharp increase in chicks hatched for laying flock replacements late this winter and early next spring, according to A. Kermit Birth, extension poultry marketing specialist at Pennsylvania State University.

"Actual increases in the number of chicks purchased," he believes, "will depend largely on egg prices from now through next June. Substantial price gains would certainly bring on this increase."

What can be expected through the rest of this year and early 1961? Total egg production in the U.S.—January through August this year—averaged 2% less than in 1959, he noted. However, August production was about the same as a year ago.

Sharp increases in chicks hatched for laying flock replacements since April have not been sufficient to offset the decrease in the January through April hatch, Mr. Birth noted. As a result the number of chicks hatched thus far in 1960 was 15% below a year ago by the end of August. There were also 14% fewer pullets not yet of laying age on farms.

Potential layers did not show the same decline as the hatch, he said. On Sept. 1, there were 7% fewer layers and potential layers on farms than a year ago.

"Reduced culling of hens has partially offset the decline in hatch," said Mr. Birth. "Current prices are likely to encourage holding more hens and delay culling. The main strength in the market has been in prices of pullet and medium eggs, reflecting lowered supplies."

Mr. Birth says that the delayed hatch means that there will be more pullets housed in November and December than a year ago, although total number of pullets will be lower.

"It is likely there will be a 2-3% smaller laying flock on the first of the year," he added. "This, coupled with an increase in the rate of lay should bring production close to year ago levels.

"For the balance of the year, prices will average above a year ago, perhaps 4-5¢ doz. Weakness may occur in prices of medium and pullet eggs later."

This is the second year in a row when the hatch for laying flock replacements has been below the previous year.

If prices go too high and there is a sharp increase in chick hatch, Mr. Birth believes there could be a return of the 1959 situation. At that time, the 1958 hatch increased sharply over the previous year, thus adding more egg production than markets could absorb. The pounds of feed the production of a hen will buy are now the most favorable since March, 1959. April, 1960, is an exception.

Iowa Hog Selling Agency Reports Rush

DES MOINES—More chances to sell hogs than they had hogs available was the first five-day report of the Farm Bureau Service Co. of Iowa since the unit opened its own selling agency in Des Moines, according to Bob Coble, manager of the sales marketing department.

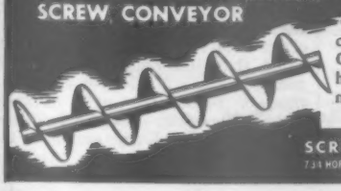
Mr. Coble recently joined the sales marketing staff after 40 years of experience in buying and selling hogs to the Farm Bureau livestock marketing program.

The newly-opened agency in Des Moines is designed to handle hogs bought at the three Farm Bureau marketing centers over the state.

The third livestock marketing center of the Farm Bureau opened Oct. 17 at Grinnell.

The yard is managed by Harold Cocking, former assistant manager of the Tipton marketing center. The Grinnell yard serves Poweshiek and Jasper counties, plus parts of Marshall and Tama counties.

HAMMOND *Helicoid* SCREW CONVEYOR

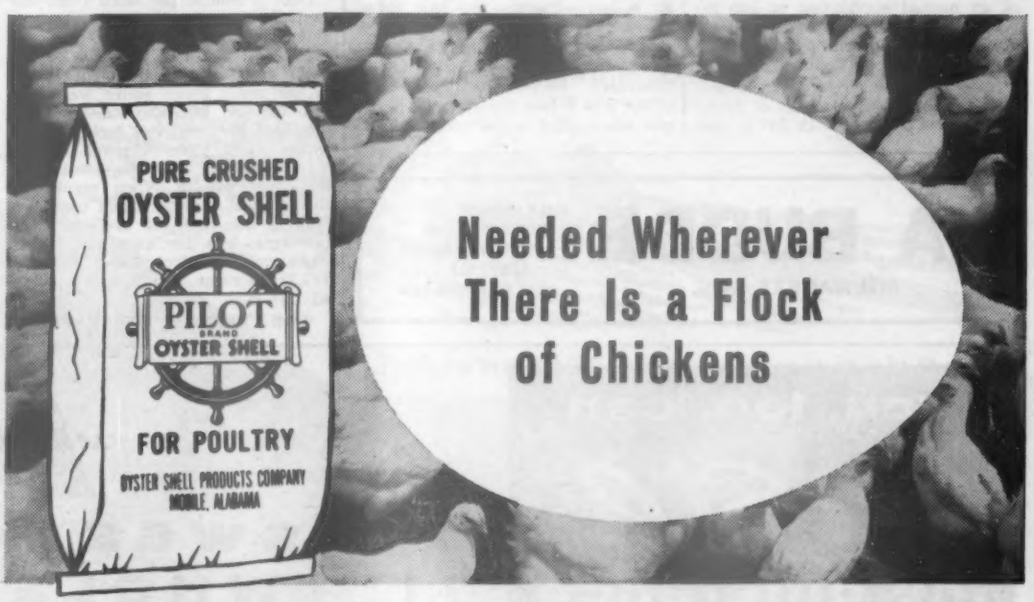


All Flighting is precision formed and welded to pipe together with forged end lugs which combine to make a rigid one-piece unit. Cold rolling of Flighting produces a dense, hard finish and increases the Brinnell hardness of the steel.

Write for Literature

SCREW CONVEYOR CORPORATION
731 HOFFMAN ST., HAMMOND, IND. • WINONA, MISS. • SANTA CLARA, CAL.

GET MORE PROFIT PER BAG WITH
LABORATORY CONTROLLED FEED
Don't let profit slip away needlessly. Quality control doesn't cost . . . it pays!
WILHOIT LABORATORY FLOUR EXCHANGE MINNEAPOLIS 15



PILOT BRAND OYSTER SHELL

IN DEMAND EVERYWHERE . . . ALL OF THE TIME

PILOT BRAND knows no season. It's a best seller the year 'round. Poultry raisers have learned that this ideal eggshell material helps them get more eggs . . . eggs with stronger shells . . . eggs that bring top prices in the market.

Constant demand for PILOT BRAND means steady sales and profits for you. And we help to bring more and more business your way with powerful national advertising.

PILOT BRAND Oyster Shell is uniformly pure calcium carbonate . . . kiln-dried . . . costs less per usable pound. Stock it—display it—promote it!

PILOT BRAND OYSTER SHELL FOR POULTRY

Oyster Shell Products Company
Mobile, Alabama

unless you are entirely satisfied with the bird you are now housing—**and with the price you have to pay for it,** tell your hatcheryman you want to try a flock of Mount Hope Queens **right away.**

Arbor Acres

FILLS THE BILL

For Timely, Useful Industry Information
FEEDSTUFFS

Reports on Pasture Fertilization Studies Given at Minnesota

By DR. O. E. KOLARI
University of Minnesota

ST. PAUL — Three reports dealing with pasture fertility and fertilization as related to beef production were given during the annual Minnesota Beef-Grassland Field Day held recently at the Rosemount Agricultural Experiment Station. Stilbestrol implants also were studied.

Reports on other research results obtained during the past year at the station and reports at the field day were given in Feedstuffs, Oct. 8.

Summaries of the reports on pasture fertility and fertilization follow:

PASTURE FERTILITY AND BEEF PRODUCTION — P. M. Burson, A. R. Schmid, A. L. Harvey and O. E. Kolari—Previous pasture experiments at Minnesota have shown that beef produced per acre is increased as a result of the application of fertilizers to pastures.

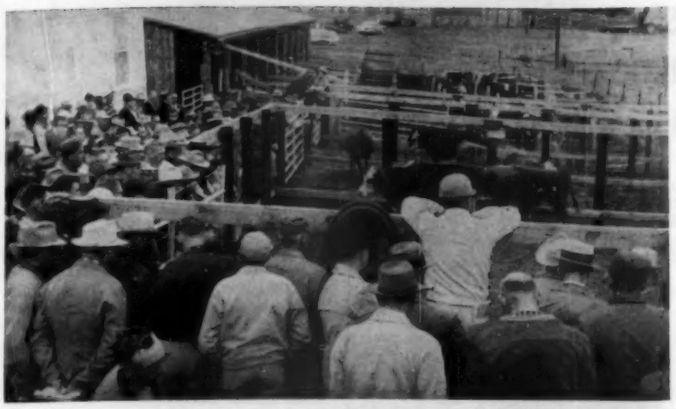
The objective of this experiment was to continue studies on the effect of an annual application of 200 lb. per acre each of 0-20-20 and 30-0-0 on beef production and pasture yields as determined by clippings.

Steer days per acre were increased from 86 to 132 as a result of fertilizing grass pastures with 200 lb. per acre each of 0-20-20 and 30-0-0. Beef produced per acre was increased from 134 to 210 lb. due to fertilizing of the grass pastures. When the fertilizer costs were deducted, the value of the beef produced per acre was placed at $28.14 for the unfertilized and $29.10 for the fertilized pasture. Renovated pastures out-yielded either unfertilized or fertilized pastures. It produced 280 lb. beef from 181 steer days per acre with a value of $44.40 after deducting fertilizer, tillage and seed costs.

The nitrogen fertilizer was applied at either of two different times in the spring and/or in midsummer. Average data from seven pastures indicated that the yield of unfertilized pastures was 0.97 ton per acre. The time of fertilization with nitrogen and yield per acre for the fertilized pastures were: Early spring, 1.45; early spring and summer, 1.34; late spring, 1.37, and late spring and midsummer, 1.41 tons per acre as determined by clippings. Sixty-six pounds of nitrogen were applied per acre when single applications were used; 33 lb. of nitrogen were applied at one time when split applications were used.

BEEF PRODUCTION FROM RENOVATED AND FERTILIZED GRASS PASTURES—A. R. Schmid, P. M. Burson, A. L. Harvey and O. E. Kolari — During the past three years four types of treatments on grass pastures have been compared: No fertilizer, nitrogen, manure and renovated. Manure was applied at either 6 or 8 tons per acre and nitrogen was applied at the rate of either 60 or 80 lb. per acre. The objective of this year's experiment was to continue comparisons of grass pastures that had received no fertilizer, 8 tons of manure per acre, 80 lb. of nitrogen per acre and a renovated pasture.

Beef produced per acre from the control, manure, nitrogen and renovated pasture treatments were, respectively: 172, 247, 289 and 240 lb. Steer days for the treatments listed in the order given above were: 99, 148, 148 and 148. The value of beef produced per acre, less fertilizer and tillage costs were: Control, $35.15; manure, $31.55; nitrogen, $40.37, and renovated $26.40. When results of three-years' pasture trials were averaged, the value of beef produced per acre, less fertilizer and tillage costs, were: Control, $47.46; manure, $42.92; nitrogen, $46.27, and renovated, $57.75.



ATTEND FIELD DAY—Some of the 600 cattle feeders who attended the Beef-Grassland Field Day at the Rosemount Experiment Station of the University of Minnesota view different classes of cattle while alternative feeding programs and profit prospects are being discussed. The feeders heard results of experiments with energy levels, hay vs. no-hay rations, benefits of additives and extensive reports on vitamin A research among the reports.

THE EFFECT OF PASTURE FERTILIZATION AND STILBESTROL IMPLANTS ON BEEF PRODUCTION—A. L. Harvey, O. E. Kolari, P. M. Burson and A. R. Schmid— An average of seven years' results shows that fertilizing alfalfa-brome pastures increased carrying capacity 55 steer days per acre (114-169); beef produced, 85 lb per acre (206-291 lb.), and the value of beef produced per acre less fertilizer costs, $10.04 ($47.64-$57.68). Only one year out of seven (1959) was the application of fertilizer not profitable. This was prabably due to winter killing of alfalfa and orchard grass the preceding winter and the extreme drouth the following spring.

Average results from three years' grazing studies on legume-grass mixtures have shown that: Beef produced from an acre of all pastures was increased 18% (280-331 lb.) as a result of implanting steers with 24 mg. stilbestrol; beef produced per acre was

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increased 58% (241-380 lb.) when steers were implanted with 24 mg. stilbestrol and grazed on fertilized pastures, when compared to steers grazed on unfertilized pastures and not implanted with stilbestrol.

The objective of the pasture study reported herein was to continue the evaluation of 24 mg. stilbestrol implants for steers grazed on fertilized and unfertilized pastures.

Steers implanted with 24 mg. stilbestrol produced 53 more pounds of beef per acre (234 vs. 181 lb.) from all pastures than steers not implanted. Fifty-seven pounds more beef per acre were produced as a result of implanting steers on unfertilized grass pastures (162 vs. 105 lb.). Twenty-seven more pounds of beef per acre were produced when cattle grazed on fertilized grass pastures were implanted (223 vs. 196 lb.). The implanting of steers grazed on legume grass mixtures resulted in a 31% increase in beef production per acre (318 vs. 242 lb.). The value of beef produced per acre on all pastures was $49.14 for the stilbestrol implanted steers and $38.01 for the steers not implanted.

One-half of the steers used for this pasture trial had been previously implanted with 12 mg. stilbestrol Nov. 24, 1959. One-half of the steers implanted during the wintering period and one-half of the steers not implanted for the wintering period were implanted with 24 mg. stilbestrol May 16, 1960, for the pasture studies. Results of this design showed that previous implanting with 12 mg. stilbestrol (on Nov. 11, 1959) had no effect on subsequent gains of cattle during the pasture season.

Sherwood Feed Mills Sponsors Beef Event

BALTIMORE — Sherwood Feed Mills, Inc., recently sponsored a beef producer meeting held at the Turf Valley Country Club here. Approximately 125 dealers and beef producers discussed feeding, growing and marketing of beef.

"It was one of the largest meetings of its kind to be held in the East," according to E. F. Sherwood Dickinson, president of the firm.

Topics included: "What the Meat Packers Want in Cattle," "Urea for Cattle Feeding," "Dry Lot Feeding in Maryland," "Future of Livestock in the Maryland Area" and "Feeding of Cattle in Argentina and South America."

NEW FEED FIRM

HELENA, ARK.—Delta Feed Co., a new firm specializing in on-the-farm feed service, has started operation in this area. The firm, owned by Raymond Kummer and Palmer Jones, has purchased a new portable feed grinding and mixing unit. The company will have a capacity of six tons of custom mixing per hour.

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USDA Reports 1% Increase in Cattle on Feed

WASHINGTON—Cattle on feed on Oct. 1 of this year showed a 1% increase over those reported on feed a year ago, according to the U.S. Department of Agriculture. The report includes data collected from the 26 major feeding states in the nation.

Cattle on Feed Up 1%—On Oct. 1, 1960, a total of 5,075,000 head of cattle and calves were on feed for market in the 26 major feeding states. This was an increase of 1% from the 5,001,000 head on feed in these states Oct. 1, 1959, but was down seasonally from the 5,590,000 head on feed July 1 of this year. The July 1 to Oct. 1 decline for the 21 top feeding states with comparable 1959 data was 10% this year compared with 7% in 1959.

Larger numbers were on feed Oct. 1 in 11 states, 1 state was unchanged and 14 states were down. Most of the increases in cattle feeding from a year earlier occurred in western states.

North Central States Down 5%—The number of cattle and calves on feed Oct. 1 in the 12 north central states totaled 3,069,000 head—5% below the 3,215,000 head on Oct. 1 last year. Iowa, the leading state, was unchanged from last year but Nebraska, the second ranking state in this region, was down 10%. Kansas, North Dakota, and Minnesota show the only gains in cattle feeding in the north central states.

Western States Gain 13% in Number on Feed—In the 11 western states, there were 1,703,000 head of cattle and calves on feed Oct. 1 compared with 1,510,000 head last October—a 13% increase. California, which accounts for 45% of the cattle on feed in these western states, had 20% more on feed while Colorado, the second ranking western state, was up 18%. Idaho, Arizona, Utah, Nevada, and Oregon had fewer cattle on feed than a year earlier.

Placements Down 2%—Marketings Up 3%—Cattle and calves placed on feed in the 21 states totaled 2,598,000 head in the July-September quarter, 2% less than in the same period of 1959. Shipments of stocker and feeder cattle into 8 corn belt states (for which data are available) during July and August this year were 17% below the same two months in 1959.

Fed cattle marketings during July, August, and September in the 21 states amounted to 3,135,000 head, 3% above the same period a year earlier. In the north central states marketings were up 5%.

Beef steers and heifers (grading prime, choice, and good) sold out of first hands for slaughter at 12 major livestock markets during July, August, and September totaled 1% above the same 3 months in 1959. These data do not include direct sales to packing plants, mixed lots of steers and heifers, and some deliveries bought on prior contracts.

Weight of Cattle on Feed—Of the cattle and calves on feed in the 26 states Oct. 1, those weighing under 500 lb. were 6% of the total or the same as a year earlier; the number 500-699 lb. made up 19% on Oct. 1 this year, and 17% a year earlier; and the 700-899 lb. group accounted for 35 and 34%, respectively. The number weighing 900-1,099 lb. at 33% compares with 35% a year earlier and those weighing 1,100 lb. and over amounted to 7% of the total, 1 percentage point less than last year.

A breakdown of the Oct. 1 number on feed in the 26 states by weight groups shows larger numbers than a year earlier in the 500-699 and 700-899 lb. groups, but numbers in all other groups were down. The number weighing less than 500 lb. totaled 315,000 head on Oct. 1, compared with 322,000 a year earlier—down 2%; the 500-699 lb. groups amounted to 987,000 head—up 130,000 head, or 15%; and the 700-899 lb. group at 1,752,000 head was up 52,000 head. The 900-1,099 lb. group totaled 1,663,000 head—down 60,000 head or 3%; and the number weighing over 1,100 lb. at 358,000 head was down 41,000 head.

Kinds on Feed—In the 26 states, 70% of the cattle and calves on feed Oct. 1 were steers and steer calves, 29% were heifers and heifer calves, and 1% were cows and other. This is the same percentage breakdown as on July 1 this year and Oct. 1 a year earlier.

Time on Feed—In the 26 states, cattle and calves by length of time on feed as a percent of the total this year and last were: under 3 months, 52 and 54%; 3 to 6 months, 26 and 25%; and over 6 months, 22 and 21%.

Marketing Intentions—Reports from cattle feeders in the 26 states indicate that they intend to market 59% of the Oct. 1 number on feed during October, November and December. This would be 2,993,000 head of fed cattle, 3% above the comparable marketings of 2,894,000 head during the fourth quarter of 1959. From this total of anticipated quarterly marketings, cattle feeders in the 26 states reported that they expected to sell 35% in October, 30% in November, and 35% in December.

Expected marketings as published are based upon the usual relationships between survey data and actual marketings, say USDA officials. Detailed figures for each state are shown in Table 1, accompanying this article.

TABLE 1. Cattle and Calves on Feed by Quarters Oct. 1, 1959, July 1 and Oct. 1, 1960, with Comparisons*

State	Oct. 1, 1959	July 1, 1960	Oct. 1, 1960	Oct. 1, 1960 as % of Oct. 1, 1959
	1,000 head			%
Pennsylvania	52	52	48	93
Ohio	103	109	88	85
Indiana	137	133	110	80
Illinois	409	476	360	88
Michigan	64	86	59	92
Wisconsin	69	80	68	99
Minnesota	250	356	252	101
Iowa	1,029	1,336	1,029	100
Missouri	181	200	170	94
North Dakota	58	68	64	110
South Dakota	150	183	135	90
Nebraska	540	523	487	90
Kansas	225	178	247	110
North central states	3,215	3,728	3,069	95
Oklahoma	42	82	49	117
Texas	182	173	206	113
Montana	27	44	41	152
Idaho	90	89	83	92
Wyoming	20	26	26	130
Colorado	303	292	359	118
New Mexico	37	47	42	114
Arizona	205	209	202	99
Utah	37	33	35	95
Nevada	16	6	10	62
Washington	90	87	96	107
Oregon	49	34	48	98
California	636	738	761	120
Western states	1,510	1,605	1,703	113
21 state total†	4,789	5,930	4,853	101
26 state total‡	5,001	5,590	5,075	101

*Cattle and calves on feed are animals being fattened for the slaughter market on grain or other concentrates which are expected to produce a carcass that will grade good or better.
†Includes 12 north central states, Pennsylvania, Oklahoma, Texas, Montana, Idaho, Colorado, Utah, Arizona and California.
‡Includes 21 states in (†) and Wyoming, New Mexico, Nevada, Washington and Oregon.

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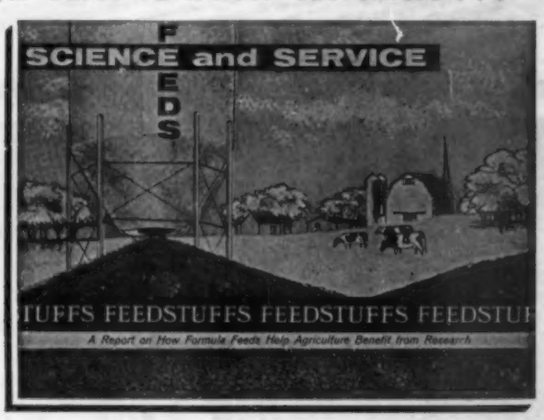
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Set DDT Tolerances

SAN FRANCISCO—The State of California has set tolerances for DDT in feed sold for dairy cows at 0.5 part per million, to conform with the federal Food, Drug and Cosmetic Act. Tolerance for all pesticides in milk and cream was set at zero.

The State Department of Agriculture opened a new residue laboratory in Fresno, supplementing the labs in San Francisco, Los Angeles, San Diego or Sacramento.

QUADRUPLETS—Experts in the dairy industry say that birth of quadruplet calves occurs once in every 20 million times and chance of survival beyond a few weeks is practically unknown. These four grade Holstein calves were sired artificially by Lusovaugto Lad No. 1281479, weighing in at an average of 42 lb., Jan. 7, 1960, on the farm of Ernest A. Temple, East Burke, Vt. The calves were started on the Wirthmore Feeds, Inc., calf feeding program using a very limited amount of whole milk, a milk substitute and Wirthmore Twin-Mix Calf Feed. The Waltham, Mass., firm has presented the quads to the University of New Hampshire where they will be used for experimental feeding studies.

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PERMA-SOL A water soluble coated vitamin A product to be used where water solubility is desired.

PERMA-D Stabilized vitamin D_3, fat-coated for greater stability. Vitamin D_3 can also be furnished in stabilized oil solution and in water dispersible forms.

PERMA-E The stabilized, natural D-Alpha-Tocopherol "sealed-in" beadlets. The finest and most efficient vitamin E product on the market with the highest availability and efficiency.

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PERMA-MIX Recommended combinations of vitamins and antibiotics; also blended according to customers' formulas. Trace minerals added as requested. Only Perma-Mixes are made with the Perma-Vitamins.

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Turkey Promotion, Condemnations Discussed by Virginia Federation

ROANOKE, VA. — A state turkey marketing order and a special condemnation study were the subjects of two resolutions passed at the annual business meeting of the Virginia State Poultry Federation at the convention held here.

The Virginia Turkey Assn. offered the resolution on the marketing order. The resolution requested the Virginia Poultry Federation to investigate the possibility of establishing in Virginia a marketing order, which would enable the association to assess each grower of turkeys his fair share for the promotion of turkey consumption.

Concern over the high rate of poultry meat condemnations in processing plants was the purpose of another resolution. The state federation was asked to recommend to the Division of Animal and Dairy Industry, Virginia Department of Agriculture and the Agricultural Extension Service, Virginia Polytechnic Institute, that a pilot field and laboratory project be jointly undertaken to study the problems of high condemnations of broilers and turkeys.

The resolution also asked that all possible steps be taken to initiate necessary action within the Virginia industry as may be indicated by such a study.

Members of the resolution committee were: Dennis Wade, Jr., Suffolk, chairman; Dr. C. E. Howes, Blacksburg, and E. C. Compton, Stanardsville.

A trade show of 40 exhibits was part of the event which was attended by approximately 750 persons.

George Heitz, Broadway, was named president of the Federation for the coming year, succeeding Elmer Clay, Blackstone, who will serve as an ex-officio member of the federation's board of directors.

W. D. Moore, Jr., Richmond, was elected vice president and R. H. Strickler, Harrisonburg, was elected secretary-treasurer.

Elected to the federation board of directors were: W. Sterling Carter, Charlottesville; A. L. Greene, Troy; C. F. Booth, Timberville; James Kelly, Harrisonburg; Justin Dove, Broadway; Henry Holler, Edinburg; W. G. Ritchie, Petersburg; Hollis Shomo, Richmond; Dr. C. E. Howes, Blacksburg; Eddie Thomas, Harrisonburg; Dennis Wade, Suffolk; E. C. Compton, Stanardsville; Frank Moyers, Broadway; Horace V. Ginn, Alexandria, and Ernest Smith, Harrisonburg. C. W. Wampler, Sr., Harrisonburg, and J. H. Meek, Mine Run, are honorary members.

Four state groups affiliated with the poultry federation also elected officers and directors at the convention.

Officers of the Virginia Baby Chick Assn. are: Justin W. Dove, Broadway, president; Franklin P. Hurst, Dayton, vice president; Dwight H. Jordan, Bridgewater, secretary-treasurer. Directors are: Dennis G. Wade, Jr., Suffolk; Frank Bontz, Jr., Harrisonburg, and Frank Moyers, Broadway.

Virginia Egg Council officers for the coming year are: A. L. Greene, Troy, president; Tom Reese, Alexandria, vice president; Al Tanner, Culpeper, secretary, and George T. Wallace, III, Broadway, treasurer. Directors are: W. P. Gouldman, Colonial Beach; J. C. Matthews, Portsmouth; Roy Davis, Jr., Halifax; C. D. Mattox, Richmond; Everett Wolfe, Richmond; Denver Bragg, Blacksburg; Cecil Rogers, Luray; Frank Oliver, Roanoke; W. W. Simmers, Harrisonburg, and Robert Pevahouse, Harrisonburg.

Elected as officers of the Virginia Turkey Assn. were: James Kelly, Harrisonburg, president; George Bryant, Harrisonburg, vice president, and Dwight Jordan, Bridgewater, secretary-treasurer. Directors are: Henry McBride, Harrisonburg; Wayne Long, Timberville; Frank Moyers, Broadway; Dr. A. T. Leighton, Blacksburg, and Gordon Tucker, Richmond.

Virginia Broiler Growers Assn. officers are: C. F. Booth, Timberville, president; Leonard Estep, Broadway, vice president, and Nelson Simmers, Harrisonburg, secretary-treasurer. Directors are: Dan Birchett, Petersburg; Carl Shoemaker, Bergton; Herbert Near, Charlottesville; Bobby Murray, Daleville; C. H. Ingram, Crewe; L. L. Tourgee, Broadway, and G. Don Whitmore, Harrisonburg.

Three adult poultrymen and five FFA and 4-H boys and girls received special recognition.

Distinguished Service Plaques were awarded to R. H. Strickler, executive vice president of Rocco Feeds, Inc., Harrisonburg, Va., and L. L. Tourgee, director of member relations for the Rockingham Poultry Marketing Cooperative, Broadway, Va.

T. D. Birchett, Sr., Birchett's Hatchery, Petersburg, Va., received a Poultry Pioneer's award, the fourth such award ever to be presented by the federation.

Nutrena Feeds Names Area Sales Manager

MEMPHIS — Tommy L. Gilbert, Natchez, Miss., has been named Nutrena Feeds area sales manager in that city, according to H. L. McGeorge, Jr., regional sales manager here.

Mr. Gilbert will service Nutrena livestock and poultry systems to farmers in southern Mississippi and Louisiana, Mr. McGeorge said. Mr. Gilbert is a native of Farmerville, La., and has held several sales posts in Louisiana and Mississippi, according to the announcement.

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An eminent nutritionist and formulator of ruminant feeds recently remarked that the addition of dehydrated alfalfa would provide "roughage nutrition" that could not be obtained in any other way. He said, "It is true that adding dehy increases the cost of our products, but we have found that performance and results are remembered long after price is forgotten."

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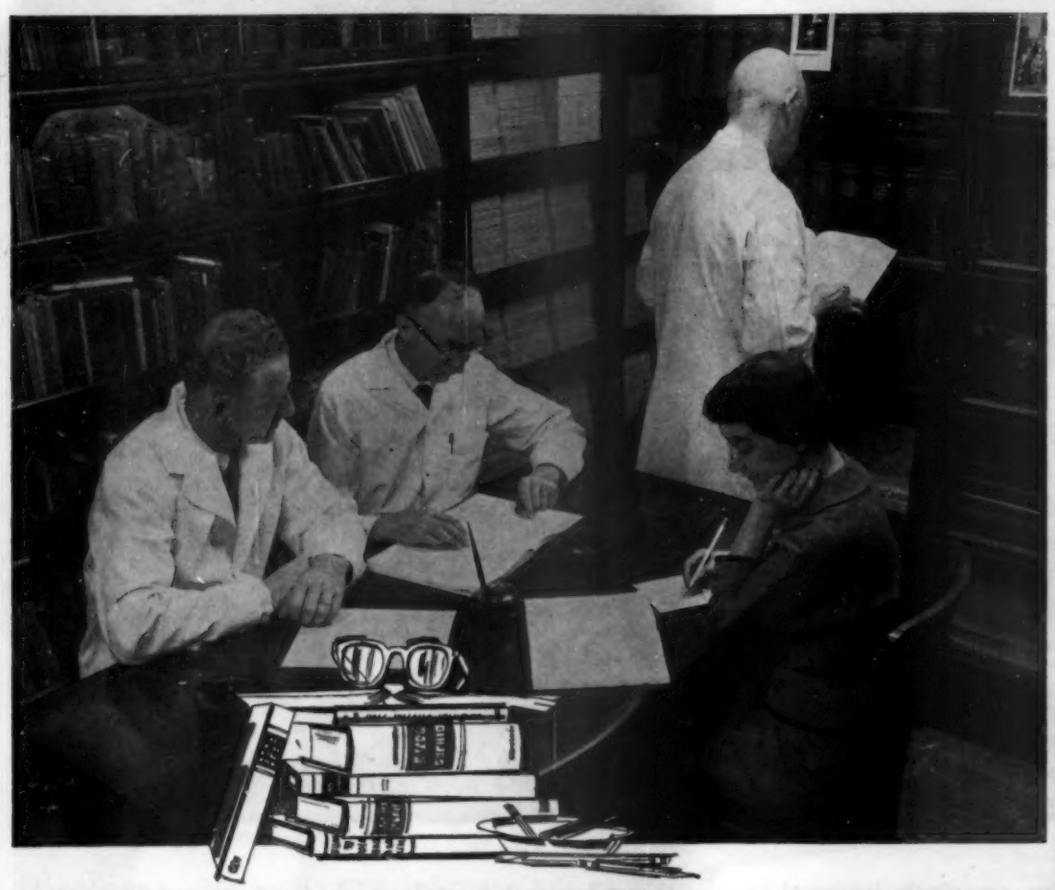
Indian Officials Speak in Stockton

STOCKTON, CAL. — Two Indian government officials recently spoke at a Stockton Grain Exchange luncheon. A. M. Thomas, deputy food minister, and M. S. Ram, director of the Indian Supply Mission, told the group why India is unable to feed herself.

Among the reasons cited by the two officials were: Lack of technical knowledge of efficient farming methods and the rapidly expanding population of the country.

Heads Civic Board

FT. WAYNE, IND. — Harold W. McMillen, chairman of the board of Central Soya, Inc., has been elected president of the new City-County Authority Board of Trustees at an organizational meeting. Oaths of office have been administered by William H. Schannen, circuit judge.



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Two inmates were talking. "I've made up my mind," blurted one suddenly. "Tomorrow I order my legions to invade England. History will never say that Julius Caesar faltered in pursuing the Brittanic campaigns."

"England, eh?" mused the other. "Well, Julius, if I were you . . . and, incidentally, I am. . . ."

◆ ◆ ◆

Teacher "Now, which boy can name five things that contain milk?"

Jimmy: "Butter, cheese, ice cream and two cows."

◆ ◆ ◆

Two camels trudged along side by side in a caravan crossing a burning desert. Finally one looked around furtively and said: "I don't care what anybody says, I'm thirsty."

◆ ◆ ◆

During a congressional campaign the Republican and Democratic candidates met at the same time in a town with only one large auditorium.

The sheriff, who had to sweep out the courthouse, told the candidates they'd have to have their meetings at the same time because he didn't intend to sweep twice in one day.

And it was up to this sheriff to introduce the opposing candidates. He arose and said, "I want to present to you a man who, above anyone, has the welfare of each and every one of you at heart. More than anyone I know, he is devoted to our great and glorious state. He understands, as no other man, the problems of our great nation. I know of no other who is so expert in foreign affairs, education, economics, taxation. . . ."

Then the sheriff turned to the candidates and asked: "Which of you polecats wants to talk first?"

◆ ◆ ◆

When the mother found her infant daughter eating handfuls of sand from the sandbox, she was frantic. She rushed the child into the house, made her drink lots of water, and then called the doctor.

After explaining what had happened and what she had done, she asked the doctor what she should do next.

"Just don't give her any cement," the doctor replied.

◆ ◆ ◆

Since Ed couldn't stop snapping his fingers, he went to see a psychiatrist.

"Why do you do this?" asked the doctor.

"It keeps the tigers away, doc."

"My good man," replied the psychiatrist, "there are no tigers within 6,000 miles."

"Effective, isn't it?" he beamed.

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IRRADIATED DRY YEAST
RICH IN VITAMIN D FOR FOUR-FOOTED ANIMALS

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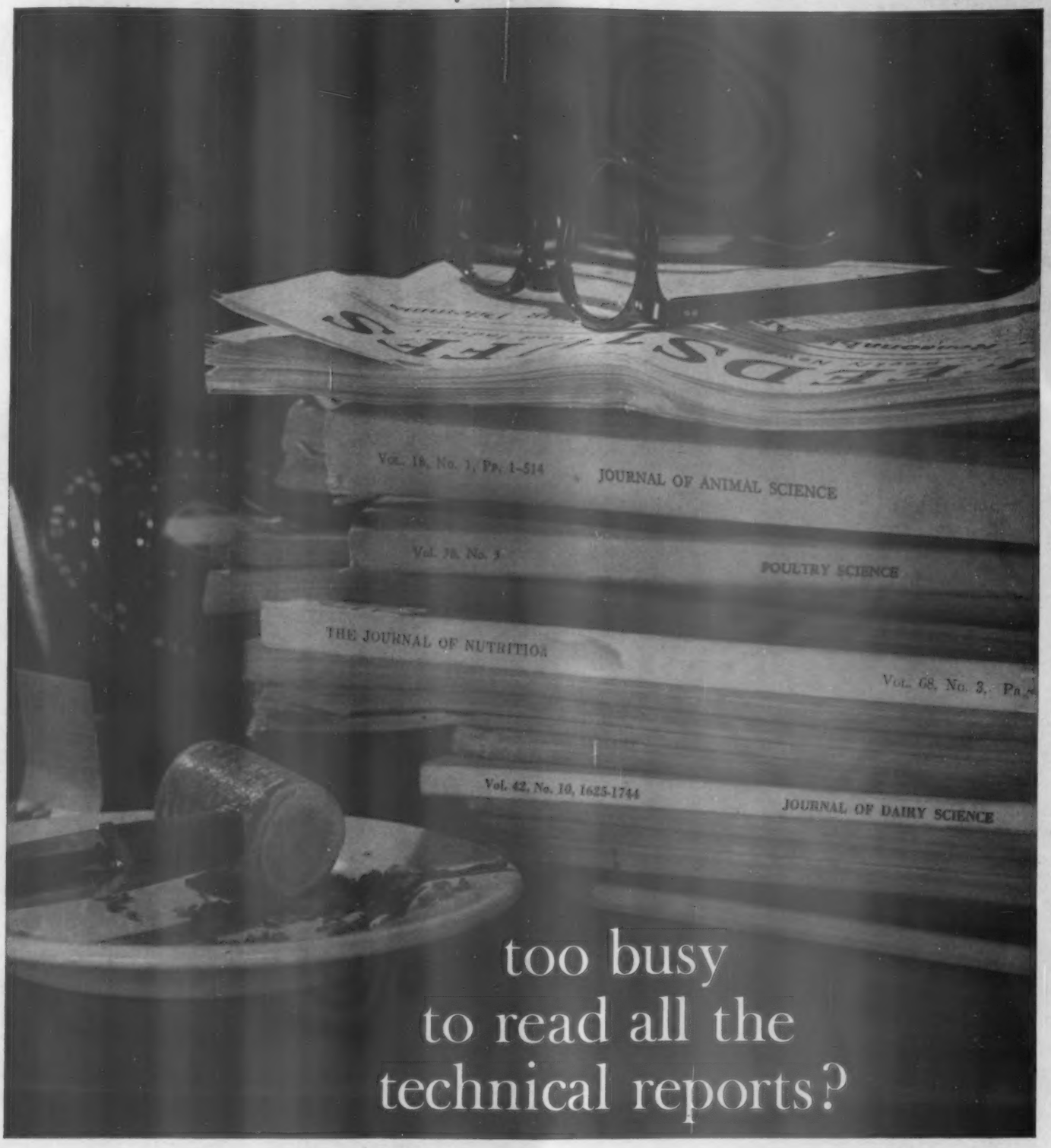
Vol. 18, No. 1, Pp. 1-514
JOURNAL OF ANIMAL SCIENCE
POULTRY SCIENCE
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Vol. 68, No. 3, Pp.
Vol. 42, No. 10, 1625-1744
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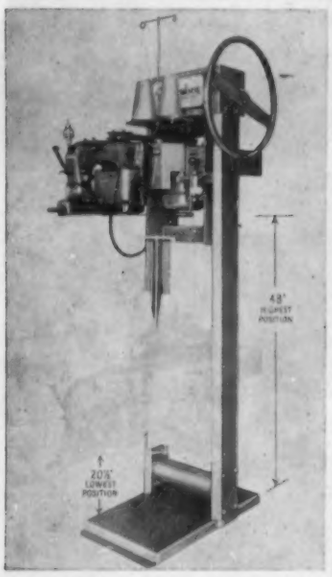
WORTH LOOKING INTO

NEW PRODUCTS • NEW SERVICE • NEW LITERATURE

DESCRIPTIONS OF NEW AND IMPROVED PRODUCTS AND SERVICES PROVIDED BY MANUFACTURERS AND SUPPLIERS ARE PRESENTED IN BRIEF FORM. FOR ADDITIONAL INFORMATION, PLEASE USE THE ACCOMPANYING COUPON.

No. 7171—Sewing Pedestal

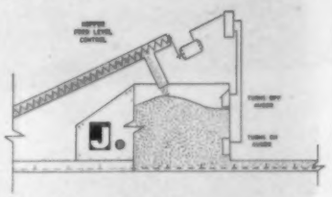
A sewing pedestal, introduced by Richardson Scale Co., will adjust vertically and horizontally to suit various bag heights and widths, sewing



heads, filter cords and tape sealers, eliminating the need for a two-headed pedestal in bag filling applications. The pedestal has a wide range of adjustments to accommodate any sewing needs, the company says. Vertically, the height of the needle can be varied from 20½ in. minimum to 48 in. maximum. The horizontal adjustment ranges from 19 in. to 27 in. Raising and lowering the sewing head are accomplished by turning a hand wheel operating a stainless steel cable through a positive ratchet for raising, and through a clutch for lowering. The head can be positioned with zero backlash. For complete information, check No. 7171 on the coupon and mail.

No. 7167—Hopper-Level Control

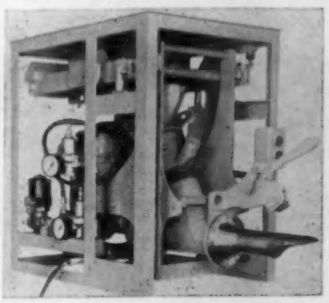
James Manufacturing Co. has introduced a hopper level control. The unit measures the flow of feed into the automatic feeder hopper. When the feed in the hopper is too low, a binful paddle unit wired to the relay at the bottom of the hopper activates the auger motor to bringing feed



into the hopper. Then, when the hopper is filled, a binful paddle unit at the top signals the relay to stop the auger motor. The three units, two binful paddle units and the relay, are simple in design and can be do-it-yourself installed, the company says. The relay carries a 24-volt current to the hopper units. It is available in 110 volts and will operate ¼ to 1½ h.p. electric motors. For details, check No. 7167 on the coupon and mail.

No. 7170—Valve Bag Packer

A compact multiwall valve bag packer, designed for easy installation and weight accuracy, has been introduced by St. Regis Paper Co. Two



models are available: The Easiflow-I for granular free-flowing materials, and the Easiflow-II for powdered, dusty materials. The packers provide accurate weighing, high production, low headroom requirements, uniform product flow and dust-free operation, the company says. They are designed for filling of 25-lb. to 50-lb. bags. Up to four bags a minute can be packed on either model, depending on product characteristics and density. Details can be secured by checking No. 7170 on the coupon and mailing.

No. 7168—Fork Truck Attachment

A fork truck attachment for the palletless handling of bagged goods has been announced by Clark Equipment Co. The attachment consists of two scoop-shaped arms which are hydraulically actuated to clamp bags. A side shifting mechanism is also incorporated to speed pick-up and place-down of loads. Scoop arms are

45 in. long and can be spread 67 in. wide or clamped to 17 in. Arm slides are fully bushed. Maximum side shift of clamps is 25 in. when clamp opening is 42 in. The attachment has a maximum capacity of 3,500 lb. and is designed to fit all Clark fork trucks. For additional information, check No. 7168 on the coupon and mail.

No. 7169—Intermediate Range Checkweigher

An intermediate range automatic checkweigher designed to checkweigh 2 lb. to 25 lb. items has been announced by Toledo Scale Corp. Model 9463 will handle packages up to a maximum size of 12 in. long by 12 in. wide with a zone edge tolerance of plus or minus ¼ oz. The normal checkweighing rate is 60 items a minute, with faster speeds attainable using shorter length packages. It is

equipped with a motorized conveyor for in-line checkweighing, and eliminates spot checking and manual checkweighing methods, the company says. Other features, the company says, include phase-sensitive amplifiers and printed electrical circuitry for protection against line voltage fluctuation. Plug-in electrical component design provides ease of interchanging parts. For more information, check No. 7169 on the coupon and mail.

No. 7166—Water-Dispersible Vitamins

A concentrated water-dispersible vitamin A and D mixture, designed for convenient administration, has been announced by Merck & Co., Inc. The product will provide supplemental A and D to poultry, swine and cattle through drinking water, the company says. A guarantee of 1,850,000 U.S.P. units of vitamin A and 185,000 I.C. units of vitamin D_3 is made for each pound of the product. Preparation of fresh water solutions daily assures full availability and effectiveness of the vitamins, the company says. To increase the palatability of the mixture, sucrose, gelatin, riboflavin, soybean oil and butylated hydroxytoluene have been added to the vitamin A and D sources, vitamin A palmitate and D-activated animal sterol. For more information, check No. 7166 on the coupon and mail.

No. 7165—Storage Tank Heating Coils

The applications of single and double embossed "Panelcoil" for heating storage and processing tanks are illustrated in a data sheet issued by Dean Products, Inc. The prefabricated coils are available in a number of sizes and shapes for either external or internal application. Heat is supplied by hot water or steam circulation. The manufacturer claims greater economy and efficiency with the "Panelcoil" as a replacement of pipe coil or jacketing. A copy of the data sheet may be obtained by circling No. 7165 on the coupon and mailing.

Also Available

The following new products have been described in previous issues of Feedstuffs and information about them may still be obtained by jotting the appropriate number of the coupon and forwarding it to Feedstuffs.

No. 7113 — Research laboratory, Flo-Tronics, Inc.

No. 7114 — Grubicide Supplement, Moorman Manufacturing Co.

No. 7115—Pig starter display, Pay Way Feed Mills, Inc.

No. 7116—Storage bin leveler, Lennox Industries, Inc.

No. 7117—Farrowing stalls kit, W. D. Hines Co.

No. 7118—Lysine supplement, Merck & Co., Inc.

No. 7119—Booklet on Piperazine, Jefferson Chemical Co., Inc.

No. 7120—Poultry feed flavor, Flavor Corporation of America.

No. 7121—Level control bulletin, Flo-Tronics, Inc.

No. 7122—Molasses unit bulletin,

Send me information on the items marked:

- ☐ No. 7165—Storage Tank Heating Coils
- ☐ No. 7166—Water-Dispersible Vitamins
- ☐ No. 7167—Hopper-Level Control
- ☐ No. 7168—Fork Truck Attachment
- ☐ No. 7169—Intermediate Range Checkweigher
- ☐ No. 7170—Valve Bag Packer
- ☐ No. 7171—Sewing Pedestal

Others (list numbers) .....

NAME .....

COMPANY .....

ADDRESS .....

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Reader Service Dept. Minneapolis 40, Minn.

Sprout, Waldron & Co., Inc.

No. 7123—Swine mixing salt, Morton Salt Co.

No. 7124—Mobile management bulletin, Seco, Inc.

No. 7125—Feed pellet binder, Cargill, Inc.

No. 7126—Feed flavor booklet, Flavor Corporation of America.

No. 7127—Bulk truck data, Sprout, Waldron & Co., Inc.

No. 7128—Enzyme approval, Merck & Co., Inc.

No. 7129—Adjustable elbow, Huss & Schlieper.

No. 7130—Conveying bulletin, The Day Co.

No. 7131—Equipment bulletin, Fuller Co.

No. 7132—Pallet booklet, Raymond Corp.

No. 7133—Broiler disease program, Chas. Pfizer & Co., Inc.

No. 7134 — Displacement blower bulletin, Sutorbilt Corp.

No. 7135—Pig anemia preventive, E. R. Squibb & Sons.

No. 7136 — Bulk truck bulletin, Sprout, Waldron & Co., Inc.

No. 7137—1961 "Feedmaker" model, J. B. Sedberry, Inc.

No. 7138—Calf milk replacer, National Vitamin Products Co.

No. 7139 — All-steel bin, Leach Manufacturing Co.

No. 7140—Automatic poultry feeders, Chore-Time Equipment Co.

No. 7141—Hanging poultry feeder, James Manufacturing Co.

No. 7142—Reference manual, Universal Hoist Co.

No. 7143 — Drying, conditioning unit, Habco Manufacturing Co.

No. 7144—Bulk feed stations, Seco, Inc.

No. 7145—Moisture register, Moisture Register Co.

No. 7146 — Feeder bulletin, B-I-F Industries.

No. 7147—Vitamin K report, Heterochemical Corp.

No. 7148—Improved milk replacer, Borden Special Products Co.

No. 7149—Bulk feed body, Henderson Manufacturing Co.

No. 7150 — Collapsible container, Highway Trailer Industries, Inc.

No. 7151—Portable feed bin, Blosser Manufacturing Co.

No. 7152—Protein analysis report, North Dakota Agricultural College.

No. 7153—Explosion protection system, Fenwal, Inc.

No. 7154—Feed ingredient analysis table, Stabilized Vitamins, Inc.

No. 7155 — Cob conveyor, Shelby Manufacturing Co.

No. 7156 — Broiler feeder, James Mfg. Co.

No. 7157—Bin vibrator, Eriez Manufacturing Co.

No. 7158—Poultry bags, Anderson Box Co.

No. 7159—Electronic control brochure, The Electronics Control Division of Flo-Tronics, Inc.

No. 7160—Bulk feed body, Winger Manufacturing Co.

No. 7161—Counter display units, Hess & Clark.

No. 7162—Grain trailer with belt conveyor, The Wilson Trailer Co.

No. 7163—Roll-to-back nest, Keen Manufacturing Corp.

No. 7164—5-ton vertical mixer, Jacobson Machine Works.

Suggestions on Credit

SANTA FE, N.M.—"This is a time to use credit conservatively in beef production. This is a time to build for the future whether it be more productive cow herds, better pastures or more efficient feedlots." That was the advice from a Wichita researcher to bankers from two states meeting here.

Dr. P. H. Stephens, research director for Wichita Farm Credit Banks, said that even if Americans are eating more beef "current and prospective prices and profits do not emit encouraging signals."

Opening a Colorado-New Mexico Federation of Land Banks Assn. Conference here, Dr. Stephens said, "There are plenty of opportunities in sound long term programs of efficient high-quality beef production."

Dr. Stephens said prices have not kept pace with increased consumption even though cattlemen are getting better returns than in 1956, which, like 1960, was a year of high consumption.

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IRRADIATED DRY YEAST
RICH IN VITAMIN D FOR FOUR-FOOTED ANIMALS

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read these excerpts from the test data

1. "A combination of bacitracin methylene disalicylate* and penicillin produced the greatest weight gains and best feed conversion.
2. "Bacitracin methylene disalicylate* was slightly superior to zinc bacitracin in stimulating growth and significantly better in feed efficiency.
3. "The weight gain response to zinc bacitracin was not as good as the response to bacitracin methylene disalicylate*.
4. "Penicillin gave the poorest response of all antibiotics tested."

*The antibiotic content of KEMITRACIN is bacitracin methylene disalicylate. Whitmoyer KEM-PEN-10 is a combination of KEMITRACIN and penicillin.

Get the Detailed W. A. R. F. report
Write Dept. FS-10

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High Condemnation Rates Discussed At Louisiana Poultry Group Meeting

BATON ROUGE — "Unless some growers are equipped to produce healthier poultry during this winter than they did during the past winter, a vacation trip around the world for about six months might cost them less than to stay in the poultry production business," Dr. R. E. Willie, chief, inspection branch, U.S. Department of Agriculture, told the persons attending the annual convention of the Poultry Industries of Louisiana, Inc., here Oct. 2-4.

He said, "We have been deeply concerned about the level of condemnations that have been experienced by many poultry growers. We have done everything we could to be sure that our criteria are right and that their application is correct. I must say that we can do practically nothing more in this area and the responsibility now must rest with poultry producers. Two and one-half percent condemnations on 20¢ a pound live price adds ½¢ to the production cost. There is just not enough profit in the poultry business for this to continue over an extended period.

"First, I would like to stress that high condemnations are generally limited to relatively small numbers of flock owners. Because this is a topic of such broad interest one might get the impression that all growers experience high condemnations; however, this is not the case. We have studied this very carefully and have actually plotted information which indicates that condemnations exceeding 2%, even last winter, were limited to less than 5% of the flock owners. Studying this from plant to plant and area to area you would find wider differences than the general picture I have given you. However, those who experience condemnations beyond normal levels must compete with those with normal levels.

"We have done several things in the poultry division to aid the industry in overcoming this problem. I might say that this is a field in which we have no authority to operate but we are interested in the welfare of the poultry industry so we have served to stimulate the interest of the responsible agencies. We felt a system should be developed whereby our inspectors could make contact, either through plant management or directly, with diagnostic laboratories, so that these laboratories could make their tests to determine what specific diseases are present. This then could be followed by educational work with growers through the extension service or contacts with field service men with integrating companies, so that producers could be encouraged to improve their growing practices. This type of program has been carried on over the past year rather aggressively in quite a number of places — for example, Georgia, Connecticut and Delmarva.

"Several research studies have been made in an attempt to isolate the most common factors causing high levels of condemnation. Other studies have been aimed at identifying those practices which are common when flocks are found to be in general healthy condition. Some of these reports are not available in total at present but generally I think they have brought out that four broad factors affect the health of poultry delivered to poultry processing plants. These four factors are: (1) The source of the chick; (2) the adequacy of heat and ventilation; (3) general sanitation, and (4) over-all management practices."

At the annual meeting, the following officers were elected: President, J. R. Heflin, Shreveport, La.; vice president, Dan R. Durham, Hammond, La.; executive secretary-treasurer, Stella Jones, LSU Agriculture Extension Service, Baton Rouge, La., and assistant secretary, Dr. A. B. Watts, head, poultry department, LSU, Baton Rouge, La.

Other program speakers and their topics were: "Effects of CRD on the Poultry Industry," Dr. O. L. Thompson, Dr. Salsbury's Laboratories, Charles City, Iowa; "Trends in Contract Growing," Joe Sanderson, president, National Broiler Council, Laurel, Miss.; "Broiler Auctions," Frank Sisco, president, Southwest Poultry Exchange, Nacogdoches, Texas; "Broiler Condemnation Problems," Dr. H. T. Cartrite, Texas Experiment Station, Gonzales, Texas; "New Ideas in Merchandising and Marketing Eggs," R. M. Hendrickson, General Mills, Inc., Minneapolis; "Egg Quality," William P. Garth, Pelahatchee, Miss.; "Merchandising with Chain Stores," Ted Stuck, egg merchandising manager, Lone Star Feed & Egg Depot, Shreveport, La., and "Straight Talk," Thomas J. Anderson, publisher, editor - in - chief, Farm and Ranch, Nashville, Tenn.

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Dates Are Announced For 1961 Egg School

AUBURN, ALA. — Dr. Claude A. Moore, head of the poultry husbandry department at Auburn University, has announced that the annual Southeastern Egg Quality and Grading School will be held in Auburn July 24-28 next year.

The school will have the use of new facilities now under construction, and it will provide the latest research and techniques pertaining to egg quality and marketing. Co-sponsoring the program will be the Southeastern Poultry & Egg Assn. in cooperation with other state agencies and the U.S. Department of Agriculture.

The program will be designed to meet the growing needs of the commercial egg industry in the South. Invitations to attend the school will be given to industrymen in all southeastern states, Dr. Moore reported.

Turkey Men Promote Use of Gift Certificates

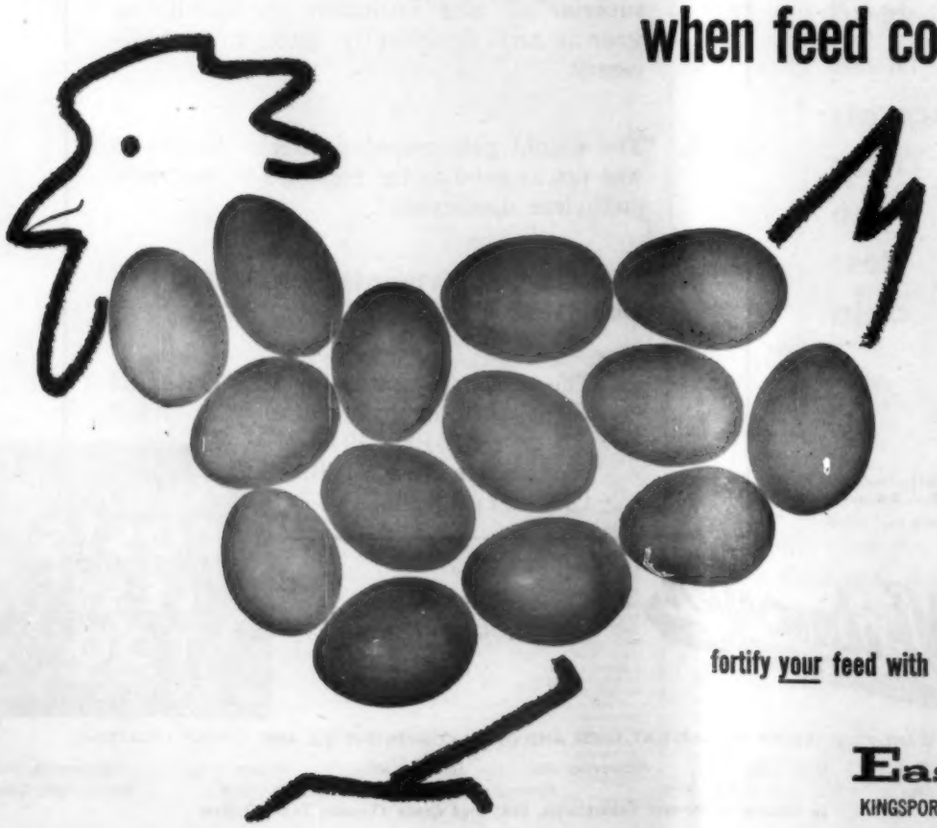
MT. MORRIS, ILL.—A new promotion has been devised by the National Turkey Federation to stimulate the use of greater numbers of turkeys as Christmas gifts or as gifts for any occasion.

This is in the form of an attractively printed and illustrated gift certificate. The certificate can be used in any number of ways. Turkey producers who have a specialized retail business can use them to stimulate their sales. Retail store companies can use these to promote the sale of turkeys, also.

This new item, the gift certificate, is being added this year to the Christmas wrapping material promotion used in years past. Samples of the certificates and Christmas wrapping materials are being mailed to retail stores over the nation now.

Anyone desiring samples may write to the National Turkey Federation, Mt. Morris, Ill.

layers seem to be made of eggs...
when feed contains Tecmangam



For productive, healthy flocks manganese is essential —and Tecmangam is an ideal source for this vital element.

Tecmangam contains 75-78% manganese sulphate in a completely soluble, readily assimilable form. It is easy to add to feed. Free-flowing, non-dusting, Tecmangam is a clean material to work with.

In addition, Tecmangam helps chicks remain free of perosis. Egg shell breakage is reduced. Hatchability is improved.

Provide an adequate level of manganese in your feed by adding one pound of Tecmangam to every ton.

fortify your feed with tecmangam
Eastman manganese sulphate

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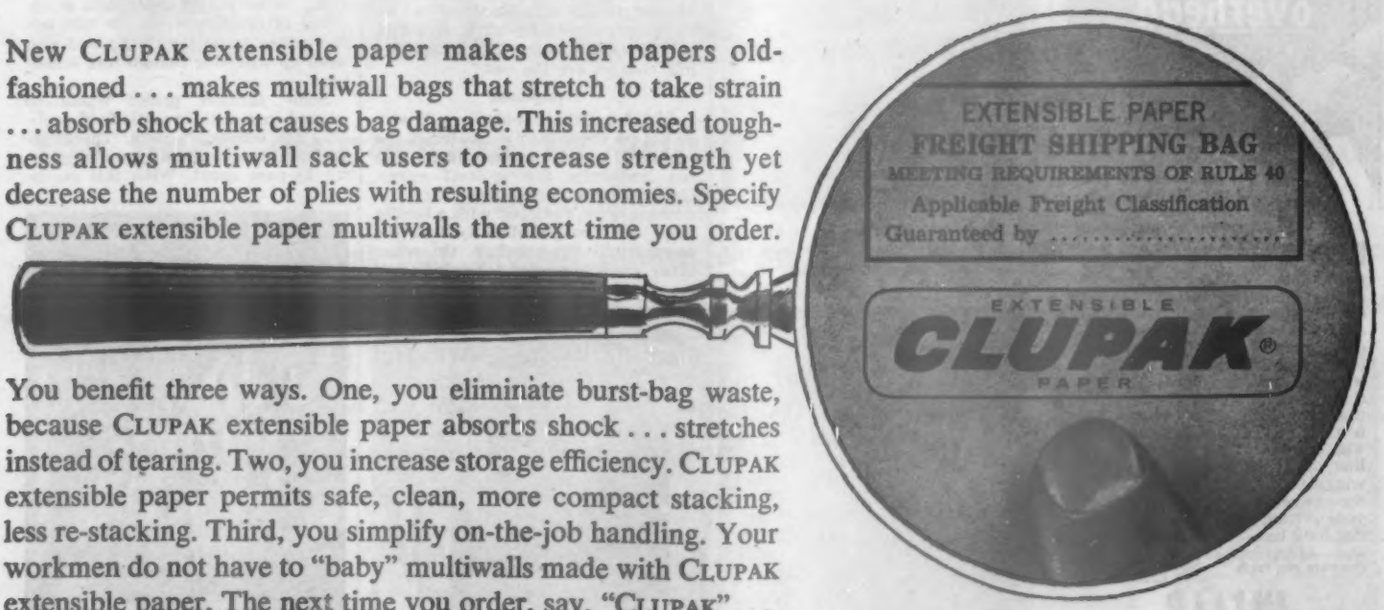
New CLUPAK extensible paper makes other papers old-fashioned . . . makes multiwall bags that stretch to take strain . . . absorb shock that causes bag damage. This increased toughness allows multiwall sack users to increase strength yet decrease the number of plies with resulting economies. Specify CLUPAK extensible paper multiwalls the next time you order.



You benefit three ways. One, you eliminate burst-bag waste, because CLUPAK extensible paper absorbs shock . . . stretches instead of tearing. Two, you increase storage efficiency. CLUPAK extensible paper permits safe, clean, more compact stacking, less re-stacking. Third, you simplify on-the-job handling. Your workmen do not have to "baby" multiwalls made with CLUPAK extensible paper. The next time you order, say, "CLUPAK"... before you say paper.

*Clupak, Inc.'s trademark for extensible paper manufactured under its authority and satisfying its specifications. Clupak, Inc., 530 5th Ave., N. Y. 36, N. Y.

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As easily as you say RALPH WELLS & CO., you can have *your own* private label ready-to-go dry dog food line . . . kibbled biscuits, meal, cubes, and expanded. WELLS provides the plant, the nutritionists, the production staff, the formula, and the complete product . . . packed under your label, shipped in full carload lots, or in mixed carloads with ingredients. You never tie-up a dollar in new equipment, additional overhead or payroll. WELLS is truly *your* subsidiary because WELLS does *not* market a dog food line of its own. Contact RALPH WELLS & CO. today . . . the one best source for *your* private label dry dog food line.

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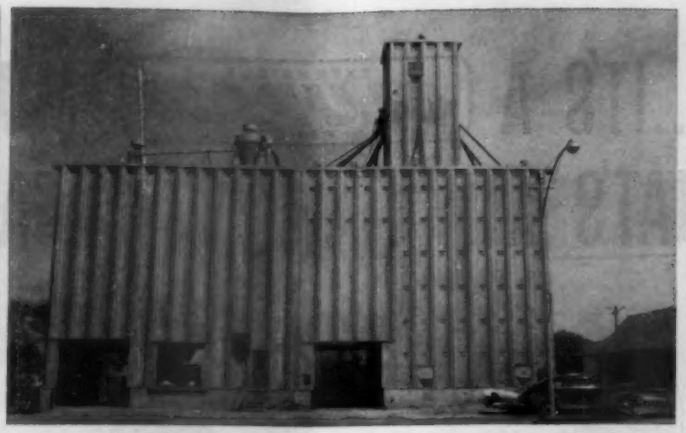
SOURCE OF THE BEST—FOR MAN'S BEST FRIEND



NEW CUSTOM MILL—This is the new custom mill of the Farmers Elevator Co., Inc., which replaced a small unit burned out a year ago. The loadout area is at the left and a drive is at the right.

Iowa Firm Builds New Mill, Features Special Services

By Al P. Nelson
Feedstuffs Special Writer

When the Farmers Elevator Co., Inc., storage facilities at Storm Lake, Iowa, burned to the ground more than a year ago, W. B. Bauer, president, immediately laid plans for the construction of a larger and more modern custom mill.

This new mill designed by Behlen Mfg. Co., Columbus, Neb., was erected at a cost of $150,000 and provides customers of the area with additional feed services. It was built by Shriver Van Horn, Jefferson, Iowa, using steel girders and galvanized metal, with Paul Park Co., Storm Lake, doing the concrete work. The mill was formally opened March 1.

About 200 farmers were invited to a local restaurant as guests of Farmers Elevator Co. for a breakfast of hot cakes, sausage and coffee. They were shown colored slides of the new mill, with Mr. Bauer and Ernest Hartwell, manager, explaining the expanded feed facilities.

Following the breakfast, the 200 farmers came back to the mill, toured the new building, inspected the equipment and talked over their feeding problems. Coffee and doughnuts were also served all day at the company's large new office and salesroom across the road from the new custom feed mill.

"For this breakfast meeting, we sent invitations to all persons who had bought feed and related products from us during the past year," says Mr. Hartwell, "and we got a wonderful response."

The new mill is operated by Bob Deal, foreman, and another man who also delivers feed. The firm has two bulk feed delivery trucks, one a 6-ton capacity Simonsen, the other a 5-ton capacity locally constructed truck. Mr. Bauer also owns the nearby Lake Fertilizer, Inc., and one of that firm's employees is available to deliver feed when necessary.

"We handle Kent, Nutrena and Murphy feeds," says Mr. Deal, "so we can supply practically all feeders with a brand they prefer. Our grind and mix charges are 15¢ cwt."

Equipment

A 75 h.p. Schutte hammermill with 30 h.p. on the blower is located in the concreted basement. Here, too, is a 3-ton horizontal Strong-Scott mixer. Grist is dumped into a receiving pit in a single drive, equipped with a bender hoist and brought directly into the hammermill for grinding. Or, when other grain is needed for grinding, it is brought in by gravity from overhead grain storage bins. Grain received for custom mill storage is elevated to bins. Two Universal elevator legs are used. One is 58 ft. high, the other 40 ft.

The mill has one 10-ton square steel bin for holding ground corn over the mixer. This is kept constantly filled with ground corn to facilitate mixing schedules. The hopper scale is 2-ton capacity and is Howe equipped.

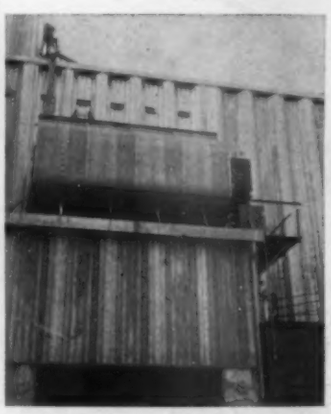
The mill has 17 steel storage bins, each with a 10-ton capacity. The nearby elevator has a 328,000-bu. storage capacity, while the mill has 77,000 bu. capacity. One Dunbar-Kapple Vacuvator is used for blowing corn into a government grain storage structure. The firm also has fan-type aerating equipment for government grain storage.

A large 500-bu. capacity Behlen gas-operated grain drier is located high on the rear side of the new feed mill. Farmers Elevator has a grain bank plan for customers and requires that corn for storage be dried to No. 2. The charge for drying corn is 1¢ per point. The grain bank "in" charge is 2¢ bu.

A Roskamp grain huller and roller mill on the first floor gets frequent use in rolling oats and corn. A considerable portion of the rolled oats production is sold to feed jobbers, while the rolled corn goes principally to cattle feeders. The charge for grain rolling is 5¢ cwt.

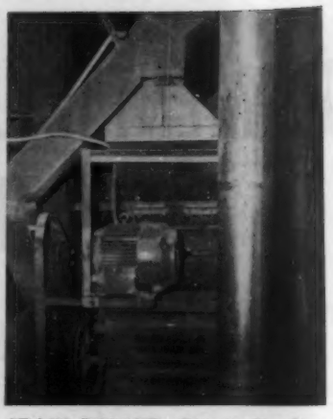
"Some months we are very busy rolling oats and corn," reports Mr. Deal. "When we get orders well in advance of delivery dates, we can use spare time to do the rolling and also keep up with our custom mix schedule."

Some farmers prefer whole to ground corn in their cattle feed, probably for economy's sake. Therefore, Mr. Deal has rigged up a metal gravity by-pass spout. With this equip-



GRAIN DRIER—This grain drier is located on the back of the feed mill about 30 ft. from the ground.

CHECKS MILL—Bob Deal checks the Schutte mill in the basement of the firm. Nearby is the Strong-Scott mixer.



GRAIN ROLLER—This is the Roskamp grain roller on the first floor. The square metal pipe at the top is a corn grain pipe with bypass for whole corn direct to mixer.

BIN CONTROLS—Bob Deal, manager of the mill, operates the bin controls. The mill has 17 steel storage bins.

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SELLIN' SAM **By Jim Zilverberg**

"He had me make your appointments for the same time—that way he can get rid of both of you at once!"

ment, corn from storage by-passes the corn roller and goes directly in the feed mixer.

Satisfy Customers

"You've got to do these things to satisfy some of the individual customers who have fixed feeding ideas," says Mr. Deal. "Some like to save a rolling charge on the whole corn. We will even grind and mix for farmers who bring in their special brand of concentrate — a brand other than those we carry. By giving them this service, we hope that eventually they'll switch to the brands we carry. And this has happened, in some instances, since the new mill opened."

Hours are 7 a.m. until 6 p.m. six days a week. On days when a big grain rolling program is scheduled, Mr. Deal puts in extra evening hours operating the grain roller.

Farmers Elevator Co., Inc., also has a full-time field salesman, Dale Mooney. This man visits about 10-12 farmers a day, talking with them about their feed and farm supply needs. In this way, the salesman is often able to line up new feed accounts and sell related items, too. The feed firm handles the Pax line of hog feeders, and the salesman sells many of them on his calls through the trade area. He is paid on a salary and commission basis.

A cash discount of 1% is allowed customers if an account is paid within 30 days, says Mr. Hartwell. This policy has helped considerably in getting feed bills paid on time. However, the company has some delinquent accounts now and then. Personal calls constitute the best way to collect delinquent accounts, Mr. Hartwell says.

Sixteen Entries Fill California Fryer Test

MODESTO, CAL. — The 1960-61 California Random Sample broiler-fryer test has been completely filled, according to Emery A. Johnson, superintendent of the Poultry Improvement Commission. This year 16 entries of 16 different breeding combinations have been accepted. This compares with 12 applications a year ago.

The new test has been modified in several respects. An entry will now consist of sufficient eggs to hatch a minimum of 500 chicks, of which 450 will be divided into three pens of 75 cockerels and three pens of 75 pullets. Entrants in the past test were represented by 200 chicks divided among four pens. The increase in both pen size and number will result in a more accurate estimation of stock productivity, Mr. Johnson explains.

The birds will be processed at 8 weeks of age, after which a report will be made to the public. Persons interested in receiving the test report may write to the Superintendent, Poultry Improvement Commission, Route 3, Box 1145, Modesto, Cal.

B. L. Day Named to Nutrena Sales Post

LINCOLN, NEB. — Burt L. Day, formerly of Omaha, has been named Nutrena Feeds area sales representative with headquarters in Columbus, Neb., according to D. F. Broekemeier, district sales manager here.

Mr. Day will service Nutrena livestock and poultry systems to farmers and ranchers in east-central Nebraska, Mr. Broekemeier said. Mr. Day was graduated from Iowa State University with a major in animal husbandry.

Form Scientific Firm

PALO ALTO, CAL. — Pooling the talent of two established scientific firms, the Hazleton-Nuclear Science Corp. was formed recently here.

The new company will be the west coast affiliate of Hazleton Laboratories, Inc., Falls Church, Va., and of Nuclear Science & Engineering Corp., Pittsburgh.

Services offered will include analytical chemistry; biochemistry; radio-chemistry, including low level radio-isotope assay; radio-biology; organic synthesis; toxicology; pharmacology; entomology; radio-isotope techniques, including industrial and agricultural trace application; decontamination and disposal techniques, and activation analysis.

The organization also will provide consulting services in such regulatory areas as food and drug, industrial hygiene, pesticide use and radiation control.

Hazleton-Nuclear Science has taken over the laboratories and staff of Hazleton Laboratories' western division in Palo Alto.

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FEED CONTROL COMMENT

By BRUCE POUNDSTONE
Secretary, Association of American Feed Control Officials
Kentucky Agricultural Experiment Station, Lexington

Comment on Items From AAFCO Meeting

Antibiotic Feed Supplement: The term "antibiotic feed supplement" will now be discarded. This follows the fate of animal protein factor and similar terms. After serving their usefulness, such general expressions are replaced with more meaningful designations. The actual antibiotic will now be listed by name.

The term antibiotic feed supplement originated in the days when antibiotics were not well defined. At that time it was not easy to get a specific antibiotic. Some were in short supply and they were used interchangeably without naming the individual product.

The situation has changed. Various antibiotics for the most part are readily available. A feed manufacturer may choose what he wants. Not only should the feed manufacturer be in a position to purchase known, named antibiotics for uses in feed but the consumer may also wish to know what antibiotic or antibiotics are specifically present.

And so the answer is that the definition for antibiotic feed supplement will no longer have any usefulness and will thus be dropped from the list of terms published in the official publication of the Association of American Feed Control Officials.

This is to become effective after Jan. 1, 1961. It is not expected that a complete changeover will be made exactly on this date. Bags and labels already printed with antibiotic feed supplement may be used up within a reasonable period.

This recommendation on the part of the Medicated Feed Labeling Committee was something in the nature of a compromise with an impending requirement to list the antibiotic by name and the amount of antibiotic added as well. Regulations now require a guarantee for the amount of oleandomycin at levels under 50 gm. per ton. It is anticipated that the amount of all antibiotics, ever so small, will eventually be called for as a part of the guarantee. For the present time (Jan. 1) the name will be sufficient for other than oleandomycin.

Feeding Cane Molasses: The definition for "feeding cane molasses" received considerable attention both in the States Relations Committee and the Executive Committee of the Association of American Feed Control Officials.

In an article on page 7 of the Oct. 1, 1960, issue of Feedstuffs, representatives of the Pacific Molasses Co. were quoted at length as desirous of returning to the previous definition that was in effect from 1940 to 1957.

In the discussions in Washington charges and countercharges were made as to the comparative efficacy of adding "sea water" to blackstrap as it comes from the sugar refinery on the one hand in comparison with "blending of distillers slops" on the other. At one point a suggestion was made that other undeclared liquids may be finding their way into mixtures later sold as feeding cane molasses.

Part of the problem is the matter of determining such blending once the product appears on the market. Neither the industry nor control officials have methods for making such determinations. More to the point was the question of the extent to which molasses was less palatable or in some instances even injurious when these additions are made. One manufacturer claimed that the addition of "distillers slops," as he called them, raised the content of "potassium salts" to the point where such a molasses product caused scours. These are but a few of the points heard in the course of the discussion.

Prevailing throughout this exchange was an apparent lack of information as to what the nutritional facts are as well as the relationship of the products in question to the well being of animals. Both sides in the discussion helped resolve the issue by proposing that the industry undertake studies on the nutritional aspects of these "blends." At the same time, control officials will undoubtedly double their efforts in the direction of developing methods for determining the presence of such materials when added to molasses. Eventually we look forward to having both nutritional information that will be useful and methods for showing what the products are.

In the long run, when molasses products are sold they may be guaranteed according to the materials added. A purchaser preferring molasses to which molasses distillers solubles is added might then buy this with confidence and those preferring a product to which water has been added might purchase such a product with the same degree of confidence.

One minor change in this term was approved, namely dropping the word "feeding." This is in line with a trend to avoid the use of this word unless it is absolutely necessary in distinguishing a product. Otherwise the present definition is unchanged—awaiting completion of nutritional work proposed by industry representatives.

HATCHERY SOLD

SAC CITY, IOWA—The Sac City Hatchery has purchased the Nelson Hatchery at Marcus, Iowa.

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JOE BROOKS

(Continued from page 24)

er feed and watering space, watching for signs of disease, culling the flock, gathering the eggs twice or three times a day and cooling them properly."

Mrs. Cleaver thumbed through the book. "I had one of these once, but I guess I mislaid it. Maybe I'd better read it. But I don't know too much about culling. I guess when I do it, I never want to get rid of a hen that comes pretty close to minimum requirements."

"Do you want us to cull your flock?" Joe asked.

The woman looked surprised. "Have you got time to do that? We've only got 100 chickens, remember."

Joe smiled and refilled Mrs. Cleaver's coffee cup. "Mrs. Cleaver, we'd be glad to. It's our job to cull flocks when customers want us to do it, whether the flock has 50 or 500 layers."

"Any charge?"

Part of Service

Joe shook his head. "None. That's part of our service, Mrs. Cleaver. Besides your husband buys dairy and hog feed from us This is a chance for us to show our appreciation. We'd still service your flock, even if your husband bought his feed somewhere else."

"Well, he won't," Mrs. Cleaver said. "He told me you're the best feed dealer he ever bought feed from. He says you sell good feed, and you take an interest in him and our cows and hogs. He said I should have listened to you and bought more than 100 chickens last spring."

"Well, Jim is smart," Joe said. "He knows you have jurisdiction over the poultry flock, and that it's your decision, not his, on how many chicks to buy. I didn't blame you for cutting down to 100 chicks from 500, although I felt prices would come up in fall."

Mrs. Cleaver sipped more coffee. "You said the hatch was lower this year than last, and that many farmers were not buying as many chicks, and that this would mean fewer eggs in fall and higher prices. You had the right slant. I had the wrong one."

Joe took out his pencil. "We'll be out next Thursday morning to check your flock," he said. "Is that all right?"

The woman nodded. "Fine, I feel better now. If you're going to help me make more money out of the 100 hens I've got, then I'll follow the rules very carefully. I believe it will pay. And next year I'll study the egg situation closer and consult with you. By the way, Jim told me to order two tons of hog feed for Friday delivery, and take the grain out of his grain bank account. I almost forgot to order it, I was so worried about my chickens."

When Mrs. Cleaver had gone, Joe went into his office. "Rusty," he said to his bookkeeper, "I wish more customers would tell me their problems and what they are worrying about. Now, after talking with Mrs. Cleaver about her laying flock, I've got an idea for my next bulletin. I'm going to advise farmers to exercise flock management rules very carefully and regularly on their flocks during this period of higher egg prices. It will mean more money to my customers if they do. Thanks to Mrs. Cleaver, we should be able to help other farmers and our own business through such a bulletin."

Convention Announced

STOCKTON, CAL. — The Pacific Coast Chapter of Grain Elevator & Processing Superintendents will hold its annual convention at the Stockton Hotel here Nov. 9-11, according to the chapter's president, Dan L. Skondin, Kerr Grain Corp., Portland, Ore.

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MIXES

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Check and mail card today for literature and full details

A Complete Formula Feed Operation in One Machine

The Kelly Duplex "Mix 'n Grind" combines weighing, grinding, mixing and sacking in one compact, space-saving machine that speeds up your formula feed operation . . . reduces labor and power costs . . . and gives you a product guaranteed to stand up under the most exacting inspection.

One man can easily process a complete batch in less than 20 minutes. For example, suppose your formula calls for 1200 pounds of ground corn and 800 pounds of supplement. The 1200 pounds of corn can be automatically ground and delivered into the mixing chamber in about the same amount of time it takes a man to open eight 100 pound bags of supplement and dump them into the mixer hopper. When the mixing is completed, the same man can handle the sacking. Time and labor are cut to a minimum.

But that's only part of the profit story. Superior grinding and mixing efficiency is guaranteed. Operation is smooth and noiseless. Power costs are reduced because two low horsepower motors do the entire job.

Ruggedly constructed of heavy arc welded steel throughout . . . the "Mix 'n Grind" is available in one, one and a half, and two ton models to meet your needs. A vertical screw elevator with automatic electric feed cutoff is available as extra equipment.

CLIP ALONG THIS LINE . . . FOLD OVER, FASTEN . . . AND MAIL TODAY!

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The Duplex Mill & Mfg. Co.
Springfield, Ohio

Yes, I'm interested in the KELLY DUPLEX machinery checked at the right. Please send me full information on these machines without any obligation.

☐ Send me information on Free Mill Planning and Layout Service

☐ "Mix 'n Grind"
☐ Vertical Feed Mixer
☐ Instant Change Hammermill
☐ Remote Change Hammermill
☐ Twin Molasses Mixer
☐ Vertical Screw Elevator
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☐ Pit Auger
☐ Electric Truck Hoist
☐ Chain Drag
☐ Corn Sheller with Blowers
☐ Combined Sheller-Cleaner
☐ Gyrating Cleaner
☐ Regular Corn Sheller
☐ Pitless Corn Sheller
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☐ Corn Cutter and Grader
☐ Corn Crusher-Regulator
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FEEDSTUFFS

EGGS AND LIVABILITY UP... FEED COSTS DOWN

Manwarings prove birds on feed containing Aureomycin have better livability, average 8 more eggs per year at a savings in feed costs of 1½ cents per dozen eggs

The famous Manwaring Leghorn Farms at Mentone, Indiana, have been operated by four generations of the family and, today, are under the expert management of Charles, Miles and Richard Manwaring.

Every phase of the operation of this establishment is dedicated to the production of *quality* chicks: good breeding, good nutrition and good management. In 1956, Manwaring Leghorn Farms became the authorized Northern Indiana and Western Michigan producer and distributor of Kimberchiks produced by Kimber Farms, Inc., Niles, Calif. Since then they have increased their sales by more than 500%. The new Manwaring hatchery has a capacity of 3,500,000 chicks per year.

Saves feed—reduces stress

Charles Manwaring reports: "Through our use of AUREOMYCIN® in feed we have not only saved on feed where egg production is concerned, but we have also been able to reduce stress among our flocks of 30,000 Kimber Leghorn breeders. Total adult mortality rate or flock depletion, which includes culling, runs 9% a year. This was much higher before we began using AUREOMYCIN.

"Where additional stress develops in the course of vaccination, AUREOMYCIN has been especially effective in sustaining appetite. This was not the case before our use of AUREOMYCIN—we just had to make the best of it then."

Controlled test on Aureomycin

Recently the Manwarings conducted a controlled test on 700 birds to further pin-point the value of their use of AUREOMYCIN in feed. "We showed an increase of 8 eggs per bird per year in the birds receiving AUREOMYCIN in their feed," Mr. Manwaring states. "Livability was better and we had a saving of 1½ cents per dozen eggs in feed costs."

Results are impressive

These results have especial significance in view of the high standards of the Manwaring operation. This is a farm where efficient management and quality production are long-established basic policies. All expenditures must fully justify themselves in terms of profitable operation and quality chicks. AUREOMYCIN in feed has proved its value to the Manwarings.

If you, too, want to build up and maintain the health of your flocks, talk to your feed manufacturer or feed dealer. Ask for feeds containing AUREOMYCIN. American Cyanamid Company, Agricultural Division, New York 20, N. Y.

®AUREOMYCIN is American Cyanamid Company's trademark for chlortetracycline.

Charles and Richard Manwaring inspect one of their exceptional layers. Says Charles: "AUREOMYCIN not only reduces stress... it also saves on feed where egg production is concerned."

Healthy, 7-months-old pullets—the result of good breeding, good management and good feeds containing AUREOMYCIN.

CYANAMID
AUREOMYCIN
IN FORMULA FEEDS

CYANAMID SERVES THE MAN WHO MAKES A BUSINESS OF AGRICULTURE

USERS REPORT MORE EGG PROFITS WITH AUREOMYCIN IN FORMULA FEEDS

"Gives us more eggs on less feed . . . prevents blue comb and CRD . . . helps us stay ahead of stress . . . hens eat better, look better, lay better."

These are benefits mentioned over and over again in the reports of flock owners from California to New Jersey who are using formula feeds containing AUREOMYCIN®.

Your flock owners have been reading these reports in Cyanamid advertising throughout the year in national, sectional and local farm papers.

These advertisements are designed to (1) let flock owners know the full story of the profit values of AUREOMYCIN in layer and breeder feeds, and (2) to help you sell more formula feed.

Each advertisement reminds the consumer to buy formula feeds from his feed manufacturer or feed dealer.

If you are not now making layer or breeder feeds containing AUREOMYCIN, plan to do so. Increasing consumer acceptance of such feeds is your assurance of higher sales volume. American Cyanamid Company, Agricultural Division, New York 20, N.Y. ®*AUREOMYCIN is American Cyanamid Company's trademark for chlortetracycline.*

HENS HAPPY ABOUT FEED GIVE OWNER $3,600 BONUS

Among many pointers in this operation is how to make formula feed produce more eggs. Here's the story from Cyanamid.

This ranch makes money! It's the 71-acre ranch of Mr. Daniel J. Bakke of Turlock, California. Mr. Bakke runs a big business in buying and brooding quality chicks, carrying 25,000 laying hens for market eggs, producing turkey hatching eggs, poultry and turkey meat.

Says Mr. Bakke: "In an operation like this, good management, sanitation and feeding are all important. And for me, AUREOMYCIN® in my standard feed *is essential to all three.* Here's what I mean: AUREOMYCIN *improves my feed* and assures better health, less mortality and more production through better feed conversion. AUREOMYCIN also *aids sanitation* by lowering the disease level on my ranch. All of this leads to *improvement in my entire management operation.*"

Controls disease, improves production

Mr. Bakke supplies figures. He says: "I conservatively estimate the value of AUREOMYCIN in maintaining high egg production at about $300 each month ($3,600 yearly)...and that's over the cost of the antibiotic. My laying hens really like to eat the mash containing AUREOMYCIN. They eat better, look better, lay better. We get a longer, more even lay and better shell quality. The big reason for this, of course, is the better health provided by AUREOMYCIN. We maintain a 50-gram level of AUREOMYCIN per ton of feed as a disease preventative, particularly against CRD and blue comb."

All flocks get Aureomycin

Mr. Bakke first learned of AUREOMYCIN 5 years ago through the State of California laboratory in Turlock. He started using it then and continues to use it for his chickens, laying hens and turkey flocks. The formula for Mr. Bakke's laying mash consists of soybean meal, protein elements such as fish meal and bone and meat scraps, grain, vitamins and AUREOMYCIN. The quantity of each item (except AUREOMYCIN) is figured on an IBM computer at the feed mill, resulting in costs savings per ton of feed.

Why Aureomycin gives better feed conversion

AUREOMYCIN is the wide-spectrum antibiotic that combats harmful bacteria. It helps prevent stresses and invisible, sub-clinical diseases that use up feed energy. It is particularly effective against CRD and blue comb. Flocks don't waste feed fighting disease—they use it to produce more.

If you want to build up the health and productive capacity of your laying hens, talk to your feed manufacturer or feed dealer. Ask for feeds containing AUREOMYCIN. American Cyanamid Company, Agricultural Division, New York 20, N. Y. ®*AUREOMYCIN is American Cyanamid Company's trademark for chlortetracycline.*

Mr. Bakke operates electric cart holding 1000 lbs. feed. "I figure that AUREOMYCIN costs us about 1½¢ per bird per month . . . and pays for itself many times over."

"Protection against stresses, CRD and blue comb keeps lay up to 76% and more. AUREOMYCIN is the answer. We also use it for young chicks and for our turkey flocks."

CYANAMID
AUREOMYCIN
IN FORMULA FEEDS

CYANAMID SERVES THE MAN WHO MAKES A BUSINESS OF AGRICULTURE

"Good poultry methods are nothing short of vital to our continued success. That's one big reason we use AUREOMYCIN."

"Moving, handling, vaccination, weather changes . . . these are all stresses. We stay ahead of them with AUREOMYCIN."

EGG PRODUCER BEATS TROUBLE TO THE PUNCH

Moving in fast with feeds containing Aureomycin is a form of good management this operator uses to keep egg production up

On the ten farms comprising the Henny Penny Farms at Toms River, New Jersey, 50,000 Kimber laying hens are busy dropping eggs. Keeping these hens up to a production average of 70% or better demands good poultry practices and alertness for every sign that says "trouble."

Doesn't wait for trouble

"We can't afford to wait until the birds' appearance tells us something is wrong," says Mr. Sam Siegel, manager of out-flocks. "The time to start medication is as soon as feed consumption goes down. Birds are like children — they won't eat properly when they're feeling ill or under stress. We recognize the warning of trouble ahead and promptly start giving AUREOMYCIN® in their mash; 100 grams per ton as a preventative, or 200 grams per ton if disease appears."

Sees quick improvement with Aureomycin

Mr. Siegel is enthusiastic about results. He says, "AUREOMYCIN serves both as an appetizer and as a tonic for the birds. The same day the fortified mash is started, we see an immediate improvement in the birds."

Birds at the Henny Penny Farms are fed on an all-mash system. The bulk mash is blown into feed towers atop each hen house, where it is stored. Either automatically by time clock, or by manual control during the day, the mash is conveyed along the troughs on a continuous feeder.

Aureomycin protects against stress

"We always try to get there ahead of stress," continued Mr. Siegel. "We give AUREOMYCIN when birds are moved — before birds are vaccinated—and whenever there is a sudden deterioration in the weather. In warm months, disease often breaks out. We may notice blue comb or general sluggishness. When we do, we come in with high-level feeding of AUREOMYCIN for a period of 5 days and the birds are soon restored to good condition."

Stay ahead of trouble, as Mr. Siegel does, with the protection of AUREOMYCIN. AUREOMYCIN is the wide-spectrum antibiotic that is most effective against CRD, blue comb and invisible, subclinical diseases. Ask your feed manufacturer or feed dealer for layer feeds containing this wide-spectrum antibiotic. American Cyanamid Company, Agricultural Division, New York 20, New York. ®*AUREOMYCIN is American Cyanamid Company's trademark for chlortetracycline.*

CYANAMID
AUREOMYCIN
IN FORMULA FEEDS

CYANAMID SERVES THE MAN WHO MAKES A BUSINESS OF AGRICULTURE

Quality is something we insist on, persist in. That's why we use the most modern equipment under strict quality controls in processing the world's finest granite. The results: sharp, clean, sparkling Graniteeth—the grit that puts the bite in the bird. Graniteeth builds up the gizzard, strengthens it, gives it tremendous muscular power—putting more meat on the bones, more eggs in the crate. Use Graniteeth and you'll see profitable results in a hurry. The birds never had it so good!

YOU'VE GOT TO HAVE CLASS!

P. S. We still have a few Graniteeth face masks left over from this summer's Memphis convention. The kids love them. If you'd like one, drop us a line and we'll send it right out to you.

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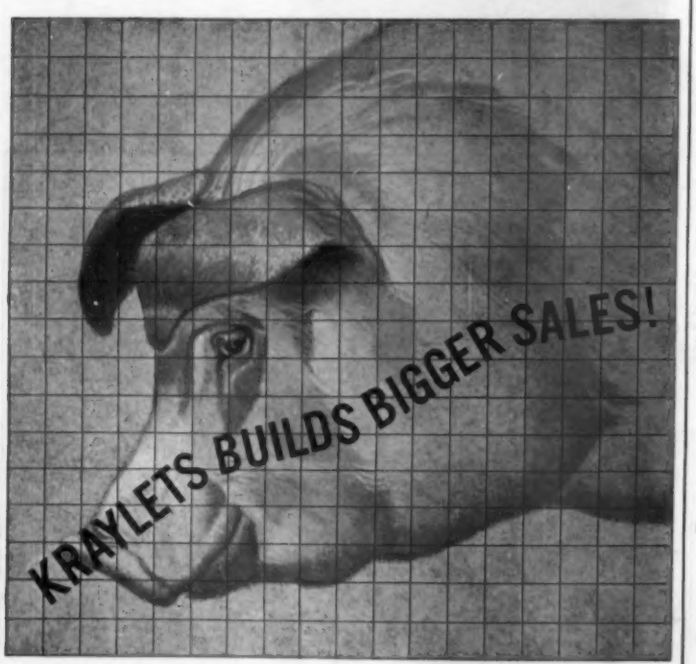

Kraylets, the concentrated milk by-product pellets for hogs, builds bigger sales for you by helping your customers produce more pork per pound of feed. Farmers bring their hogs to market in record time by using Kraylets to supply the milk by-product nutrients their hogs need for sound, fast growth. And faster, more economical growth means added income for your customers and bigger sales for you when you stock and recommend Kraylets. Kraylets for hogs and Kraylets Plus 2 for baby pigs (fortified with antibiotics and B_{12}) are backed by powerful Kraft advertising and merchandising support. For greater profit, contact your Kraft Man today, or write our agricultural division.

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KRAFT FOODS AGRICULTURAL DIVISION—Chicago 90, Illinois

The Feed Industry Finances Agriculture

Modern farmers buy many goods on credit just as their grandfathers did. They use charge accounts for personal items such as clothing and furniture. They give their IOU's for major items of farm expense such as fuel and livestock and poultry feeds. The 1959 feed bill in the Sixth Federal Reserve District states alone totaled $484 million, one fourth of the expenditures for current farm operations. Largely for poultry feeds, this bill was financed partly with credit advanced by feed manufacturers and dealers. Credit provided by the feed industry, therefore, has significance both for the regional farm economy and for bankers and other lenders to farmers.

Because of the importance of credit to the district's feed industry, this bank recently queried feed manufacturers and dealers about their credit practices. The results of this survey reported here are based largely on estimates obtained from 38 feed mills and 53 feed dealers.

According to respondents in the survey, feed manufacturers and retail feed dealers make about three fourths and two thirds of their sales on credit, respectively. Farmers are the typical credit customers at retail feed stores, but manufacturers also count many farmers as short-term borrowers. In July, 1960, for example, slightly more than one half of the trade credit advanced by manufacturers went to farmers.

Emphasis on Broilers

The primary reason for this intensive use of trade credit is probably the increasing emphasis being given by district farmers to poultry products, especially broilers. As such production increases, farmers require more operating capital for feed and other supplies. When their savings are insufficient for this purpose, which is often the case, they may obtain capital through trade credit provided by the feed industry. According to research done by colleges of agriculture in district states in 1951, 98% of the broiler growers, for example, were using credit provided by feed dealers, mostly on open account. Dealers in turn were using trade credit available from feed manufacturers.

Farmers, of course, like trade credit because it is usually readily available on lenient terms. Then, too, farmers tend to rely more and more on the guidance of feed manufacturers and dealers in managing, producing and financing because of the technical competence of these firms.

Although the initiative for using trade credit from feed firms may come from farmers, feed firms themselves encourage the practice. Both manufacturers and dealers want to sell more feed and they may offer credit services to do it. This has been especially true in the broiler industry. A feed mill producing 40,000 tons of feed a year, for example, and grossing about $2.8 million may have $400,000 continually invested in trade credit. Some dealers handling the feed mill's output may have as much as $50,000 tied up in merchant credit. Where do these funds come from?

Feed mills responding in the survey report that they finance about 75% of their credit sales with internal funds. Retail feed dealers who

EDITOR'S NOTE: *This article appeared recently in the Bankers Farm Bulletin, a publication of the Federal Reserve Bank of Atlanta. The Atlanta Federal Reserve Bank serves Alabama, Florida, Georgia, Louisiana, Mississippi and Tennessee.*

TABLE 1. Terms of Accounts and Notes Receivable Outstanding for Credit Extended by Feed Manufacturers and Dealers
Sixth Federal Reserve District, July, 1960

Accounts Receivable Item	No. of units reporting	Per cent of accounts receivable outstanding for* 30 days or less	60 days	75 days	90 days	120 days or more	Total
Feed manufacturers							
Extending credit on accounts receivable for							
30 days or less	2	100	0	0	0	0	100
60 days or less	6	82	18	0	0	0	100
75 days or less	7	52	17	31	0	0	100
90 days or less	6	61	11	11	17	0	100
120 days or more	16	46	15	12	12	15	100
Total	37	58	15	13	8	6	100
Retail feed dealers							
Extending credit on accounts receivable for							
30 days or less	2	100	0	0	0	0	100
60 days or less	9	62	38	0	0	0	100
75 days or less	2	42	5	53	0	0	100
90 days or less	8	51	13	11	25	0	100
120 days or more	30	49	16	6	10	19	100
Total	51	53	18	8	10	11	100

Notes Receivable Item	No. of units reporting	—Per cent of notes receivable outstanding for*— 30 days only	60 days	90 days	120 days or more	Total
Feed manufacturers						
Extending credit on notes receivable for						
30 days only	..	..	..	..	..	..
60 days or less	..	..	..	..	..	..
90 days or less	1	0	5	95	0	100
120 days or more	25	6	17	21	56	100
Total	26	6	17	24	53	100
Retail feed dealers						
Extending credit on notes receivable for						
30 days only	1	100	0	0	0	100
60 days or less	..	..	..	..	..	..
90 days or less	6	0	20	80	0	100
120 days or more	17	2	13	17	68	100
Total	24	5	15	32	48	100

*Average of the proportions reported for each time interval.

ONE FIGHTS FIVE

- **CRD** (Chronic Respiratory Disease)
- **COCCIDIOSIS** Outbreaks Caused by E. tenella and E. necatrix
- **NON-SPECIFIC INFECTIOUS ENTERITIS**
- **SYNOVITIS**
- **BLUE COMB**

Yes, this single feed — New Wirthmore Medicated Quick Perk — will give your broilers and replacement chicks effective, low cost control of five common poultry diseases.

The secret is Potentiation, which means that the amount of antibiotic absorbed by the bird is *doubled*. And only one half the amount of Aureomycin® is required compared with the older-fashioned way of protective feeding.

You get better, more complete protection at less cost.

Order a trial lot of Wirthmore Medicated Quick Perk today from your Wirthmore dealer. Descriptive folder with feeding instructions available from your Wirthmore representative or from Wirthmore Feeds, Waltham 54, Mass.

WIRTHMORE®

Wirthmore Medicated Quick Perk contains potentiated Aureomycin, the *only* antibiotic cleared by the FDA for control of coccidiosis.

This new Wirthmore feed has been thoroughly tested in the Wirthmore Research facilities and proved an effective treatment for the five poultry diseases listed.

TABLE 2. Sources of Funds for Trade Credit Extended by Feed Manufacturers and Dealers

Sixth Federal Reserve District, July, 1960

Sources of funds	Per cent of trade credit extended: Feed manufacturers	Retail feed dealers
Internal	76	58
Suppliers:	8	18
Accounts payable	7	15
Notes payable	1	3
Commercial banks	16	22
Regular line of credit	13	12
Periodic loans	3	10
Other sources	0	2
Total	100	100
No. of units reporting	37	52

reported use internal funds to finance almost 60% of their credit sales.

Both feed mills and dealers use some bank credit to carry their accounts. According to the firms surveyed, a fifth of their trade credit is based directly on loans from banks obtained about equally through regular lines of credit or as periodic loans in the case of dealers. Feed manufacturers rely heavily on their lines of credit for bank loans. Both manufacturers and dealers also obtain funds from their suppliers; mills obtain about 8% of their needs in this way and dealers about a fifth.

The credit furnished by feed mills and retail feed dealers is largely in the form of accounts receivable, 83% in the case of the mills and 88% for dealers. Notes receivable, either retained by the firms or discounted at commercial banks, cover the balance in both cases, although the volume at feed mills was slightly larger than at retail feed stores. About half of the notes at feed mills were secured with chattels and about a fourth were carried as unsecured notes. Nearly 50% of the notes outstanding with feed dealers, on the other hand, were unsecured and only one third were secured by chattels. Few credit transactions at either feed mills or retail feed stores were secured by endorsed notes or real-estate mortgages.

Fairly liberal maturities on receivables were reported by the firms surveyed. Almost half of the mills and more than half of the retail dealers said they had some accounts receivable outstanding 120 days or more, although in both cases, 20% said they restricted their accounts to 60 days or less. Accounts receivable at firms heavily engaged in financing broiler production often remain outstanding about 75 days. Most feed manufacturers taking notes to cover their extension of trade or merchant credit do so for at least 120 days, although some limit the maturities to 90 days or less.

According to 1958 data provided by district feed manufacturers, most manufacturers providing retail feed dealers credit for broiler feed charge interest or service fees for the credit extended. Charges are made in various ways. Some manufacturers marked up their sale prices from 50¢ to $1 per ton; others offered ½ of 1% discount on invoices paid within 10 days; others said they charged 6% interest on the funds being used. Most retail feed dealers reporting in 1958 charged growers from $5 to $10 per ton of feed for credit and other services. The feed manufacturers charged much less or made no charge.

TABLE 3. Trade Credit Extended by Feed Manufacturers and Retail Dealers

Sixth Federal Reserve District, July, 1960

Form of credit	Per cent of trade credit extended: Mfrs.	Dealers
Accounts receivable	83	88
Notes receivable retained	13	6
Notes receivable discounted at commercial banks*	3	5
Other	1	1
Total	100	100
No. of units reporting	37	52

*One manufacturer reported selling his accounts receivable to a factoring firm.

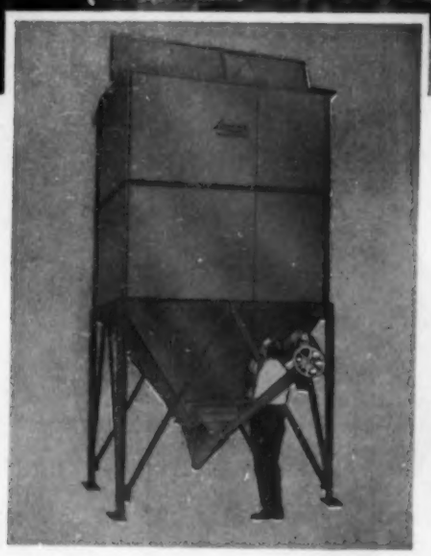
Since production of livestock and poultry in the sixth district seems likely to expand somewhat in future years, sales of feed will probably increase. Feed firms wishing to profit from a growing market, therefore, will probably continue to extend trade or merchant credit in as large or larger volume in the future as in the past. The terms, however, may be less lenient. Comments from respondents suggest a fairly widespread belief that the feed industry should keep a tighter rein on trade credit, principally by restricting financing to customers' short-term needs.

Abuse of Credit

Granting trade credit for excessively long periods invites a subtle abuse of it, according to feed manufacturers. If the amounts advanced exceed what is required for production, the debtor may use the excess to finance capital items such as equipment. This practice can be doubly dangerous: First, it ties up too much short-term operating capital, and second, it may boomerang on the creditors if it leads borrowers to over-expand their plants and glut the market with their product.

Some feed firms may be fostering such an abuse by adopting liberal credit policies, according to some of the firms surveyed. They recognized that an unfilled demand for medium-term credit exists among feed firms and farmers but that it may be filled in some cases by overindulgence in trade credit.

As more and more feed firms recognize the problems created by excessively liberal credit, and as they tie their extension of credit more closely to the production cycle for livestock and poultry products, the average time for receivables to be outstanding may be reduced. Feed manufacturers and dealers alike believe that they could reach this goal more readily if commercial banks could see their way to providing growers with more funds for medium-term purposes.



This feed man BULKS his mill with a minimum of trouble and expense. Three 5-ton single compartment Lemanco bins are used for concentrates which are wheeled by weight buggy to mixer and augered directly into his or customers' trucks.

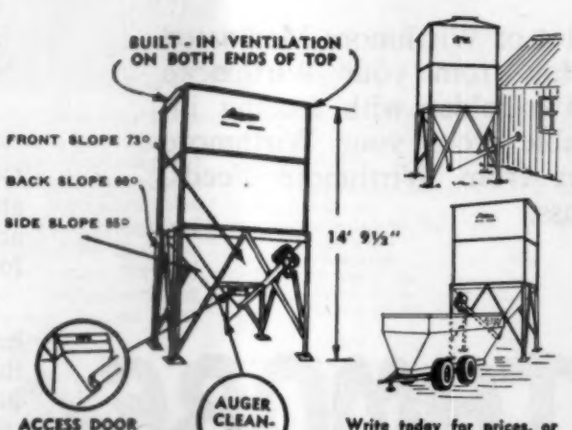
In Mills or on Farms

Lemanco

all-steel, quality bins fill the need for handling all types of feed in BULK

NO. OB 7652-96-A, TWO TIER OF SIDES (8 TONS)
NO OB 7652-48-A, ONE TIER OF SIDES (5 TONS)

- Easy to assemble. Special auger design prevents packing in boot. Easy to reach with truck auger as bin is less than 15 feet high.
- Clean-out door in rear of boot and access door in front of bin makes feed available in event of power failure.
- Large filler door permits complete filling of bin and is convenient for auger truck. Can be opened and closed from the ground.
- Auger lengths of 12, 16, and 20 feet available. When ordering specify which auger pitch is desired. 21½° auger boot for use augering in building over automatic feed hopper. 40° auger boot for use on farm to fill vehicles.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14' 9½"
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When you see worms...it's too late!

That purged worm you find has already gotten even with you. She's been slowly inching her way through your hog's gut for the past two months...growing to egg-laying maturity on your feed all the while. You got her, all right...but not before she got part of your profit. Worse yet: the millions of invisible worm eggs she laid are all around you...just waiting to trim off part of the profit from your next bunch of pigs!

Other products just interrupt the problem. **Only Hygromix controls it.** Hygromix is the only worm control method that stops worms from laying new eggs, kills three kinds of worms...day after day after day.

"Hygromycin...acts partly by blocking reproduction of the parasites...an ideal way to stop the worms before they do the damage."

PRESS RELEASE—UNIVERSITY OF WISCONSIN, DECEMBER 16, 1957

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More Milk, But Lower Butterfat With Hay-Concentrate Pellets for Cows

DAVIS, CAL.—Universiity of California researchers have found that dairy cows fed exclusively on hay-concentrate pellets produce more milk, but with a lower butterfat content, than cows on a corresponding diet of long hay and concentrates.

Robert D. Appleman and Donald G. Addis report that cows in their test added 1.69 lb. to their daily milk production, with .04 lb. less butterfat.

The pellets used were one-fourth concentrate and three-fourths hay. The hay was ground to a quarter-inch for the first part of the test and to 5/16 in. for the latter part. The ground hay and concentrate were pressed into a ¾ in. pellet. The control diet was baled alfalfa hay fed free choice, with the concentrate level kept at the one to three ratio.

Two groups of 15 cows each received each diet alternately, for four week periods, over the 12-week test. One group received the pellet diet for four weeks while the other ate the long hay-concentrate ration, and then the diets were reversed.

First-calf heifers were used in the test. They were paired according to size, stage of lactation and production level. All had reached their peak of production. Average weight was 1,170 lb., average daily production was 45.4 lb., with 3.7% butterfat. They had been in milk an average of 112 days.

The California scientists' work confirms findings in other parts of the country. Mr. Appleman and Mr. Addis cite a Connecticut test in which butterfat content dropped from 4.2% before the trial to 3.8% after. However, this reduction seemed to have been in part due to the hard pellet used. A test at the University of California campus at Davis, in which finely ground hay was fed with concentrate, led to a drop of almost one full percentage point in butterfat content. Pelleting the hay and concentrate mixture reduced butterfat even more.

However, an Oregon test in which the hay was ground to 5/16 in. and pelleted resulted in only a slight drop in butterfat.

Butterfat Maintained

The California researchers found that butterfat content could be maintained if the cows were fed 6 to 10 lb. of long hay.

The cows seemed to have as much appetite for the pellets as for long hay. There was no increase in consumption, as a rule. Dairy animals apparently react differently from meat animals in this respect. The success of pellets in feeding steers has been attributed to the higher rate of consumption.

Mr. Appleman and Mr. Addis said the hardness of the pellet has an effect on consumption rates. The higher the proportion of concentrate in the pellet, the harder it will be. The two researchers raised the concentrate content of the pellet from 25% up to 36.5% toward the close of the test for one group of cows. Daily consumption dropped 10 lb.

Every effort was made in the California test to keep an accurate count of the amount of feed eaten daily. It was not possible to ascertain the proportions of concentrate and long hay eaten daily by the control group. All figures were corrected to account for such statistical variations as changing environment and between-cow variations in the slope of the lactation curve.

The findings indicated that a group of cows producing 1,350 lb. of 3.5% milk per month on long hay and concentrate would produce 1,383 to 1,416 lb. of 3.2-3.4% milk on pellets.

Cost Comparison

A cost comparison in the experiment showed that it cost $28.80 to produce $58.20 worth of milk using the long hay-concentrate diet, compared to a cost of $32.40 for $57.90 using the pellets—a $3.90 differential in favor of long hay. "It seems, then," Mr. Appleman and Mr. Addis said, "that any potential advantage of feeding an all-pellet ration must be realized through convenience of handling; savings in transportation costs; savings in shrinkage, wastage and refusal, and a decrease in incidence of hardware cases."

M. Ronning of the University of California at Davis and Lee Davis of LaSierra College assisted Mr. Appleman and Mr. Addis in the tests.

Sutorbilt Names Man To Service Department

COMPTON, CAL.—Appointment of Charles M. Druschel to its service department has been announced here by officials of Sutorbilt Corp., manufacturer of rotary positive displacement blowers, gas and vacuum pumps.

C. M. Druschel

"Part of a long-range plan to increase the company's sales and service facilities, the appointment represents an expansion of Sutorbilt's coverage in the eastern region of the U.S., with headquarters in the main office of Sutorbilt's parent company, Fuller Co., Catasauqua, Pa.," officials said.

Mr. Druschel comes to Sutorbilt from the foundry and machine shop of Fuller Co.'s plant in Manheim, Pa. Prior to his employment by Fuller Co., he was general manager of sales and service with the O.K. Clutch & Machinery Co., Columbia, Pa.

Mr. Druschel attended Lehigh University, Franklin & Marshall College and Pennsylvania State University.

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Strong-Scott Names New District Manager

MINNEAPOLIS — Appointment of Rex E. Hubbard, sales representative in the Twin Cities area during the last three years for Strong-Scott Mfg. Co., to the position of district manager for the firm's new offices in Kansas City has been announced. The appointment is effective Nov. 1.

Rex E. Hubbard

From the newly located offices at 1137 Board of Trade Building in Kansas City, Mr. Hubbard will direct sales and marketing for the Grain and Feed Processing Equipment Division in the area of Arkansas, Kansas, Nebraska, Colorado and Missouri.

"Sales potentials of grain and feed processing equipment in this area," states R. W. Fredrikson, general sales manager, "are increasing rapidly through the number of large elevators and mills being constructed each year."

Dairy Farmers Record New High in Feeding Of Grains, Concentrates

WASHINGTON — The average quantity of grain and concentrates fed milk cows set record highs for Oct. 1 in all regions except the South Central and the West, according to a report by the U.S. Department of Agriculture.

Farmers fed milk cows an average of 5.86 lb. of grain and concentrates on Oct. 1. This rate was 3% above the previous high for the date which was set last year, and more than a fourth above the Oct. 1, 1949-58 average.

Grain and concentrate feeding increased 4% from Aug. 1 to Oct. 1, compared with an increase of 5% between these dates last year, and the average seasonal gain of 7%. On Oct. 1, 75% of the farmers fed some grain and concentrates to milk cows. This was about 2 percentage points less than the proportion feeding grain on Oct. 1 last year, and was slightly below average for the date.

Quantities fed on Oct. 1 ranged from 7.3 lb. per milk cow in the north Atlantic to 4.5 lb. in the south central region. Feeding rates in other sections of the country were 6.1 lb. in both the east north central states and the West, 5.9 lb. in the south Atlantic, and 5.5 lb. in the west north central. Compared with a year earlier, feeding of grain and concentrates showed gains of 5-6% in the east north central and north Atlantic regions and smaller increases in the west north central and south Atlantic. Feeding rates in the west and south central regions lagged 2-4% behind Oct. 1 last year.

The value of grains and concentrates fed to milk cows averaged $2.88 cwt. Sept. 15. This was 1¢ above a year earlier. Ration values on Sept. 15 averaged $2.92 in milk-selling areas and $2.41 in cream-selling areas. The milk-feed price ratio at mid-September was only slightly above a year earlier, but was the highest on record for the date since 1931. The milkfat-feed price ratio was 1% below Sept. 15, 1959, but otherwise the highest for mid-September since 1948.

Record Feed Order Opens Farm Center

BIG SPRINGS, NEB. — A 12-car train carrying 500,000 lb. of livestock and poultry feed—believed to be the largest feed order shipped in Nebraska—arrived here recently, formally opening a new $150,000 farm service center at the Farmers Cooperative Elevator.

Area farmers and ranchers, townspeople and FCE executives who gathered to welcome the shipment from Nutrena Feeds' Omaha mill, heard Gilbert W. Trautman, elevator manager, describe the event as "proof of western Nebraska's continuing growth in livestock and poultry production." More than 80% of the shipment was sold prior to delivery, with many customers taking delivery directly from the rail cars.

A new 80-ton bulk feed installation at the elevator is the area's first near-at-hand bulk facility, according to Mr. Trautman, who predicted "bulk, with its handling and pricing economies, soon will represent half the elevator's total feed volume."

Don R. Lyons, Nutrena territory sales manager of North Platte who coordinated the record shipment, said the feed, if fed as a supplement with farm-grown grain, would produce 1 million lb. of pork, more than a full day's average supply for five million people.

Other new construction and equipment on display included a 45,000-bu. feed grain storage bin; 3,200-sq.-ft. bagged feed warehouse; 750-bu. grain drier; grain rollers, feed and molasses mixers. Existing facilities include a 324,000-bu. grain elevator, truck scale and warehouse.

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New Developments and Problems In Feed Control

"It now appears that the feed control official must definitely be concerned not only if products are properly labeled but if they are properly used."

By R. E. Bergman
Minnesota State Chemist

EDITOR'S NOTE: *This article is part of the text of a talk given at Minnesota's 21st annual Animal Nutrition and Health Short Course by R. E. Bergman, state chemist, Minnesota Department of Agriculture. Mr. Bergman comments on several important developments in connection with feed control, including such things as salmonella in ingredients, medicated feeds, drug withdrawal period feeds, "customer formula order" feeds with medicaments, chemically treated grains and weevilly grain.*

v v

Progress in nutrition has now reached the point where a feed analysis laboratory has become, in addition to a chemical laboratory, a vitamin laboratory, a drug laboratory, a special mineral laboratory, an antibiotic laboratory and a biological laboratory. Specialty nutritional feed ingredients or premixes must now be checked for such substances as specialty vitamins besides A and D. For example, alpha-tocopheryl acetate as vitamin E; mixed tocopherols or wheat germs as vitamin E supplement; vitamin K both synthetic and natural; and sources of pantothenic acid, niacin, choline, pyridoxine, betaine, and B_{12}.

We must now be concerned about shelf life or potency stability of vitamin premixes on aging which means the presence of stabilizing agents which also may affect quality considerations. We must be concerned about the premixes and the carrying agent or the diluent; is the diluent a nutritional factor, a low grade feeding material or actually a non-nutritive material? We know generally that the diluent is of little significance since the quantity incorporated in a ton of finished feed is minute. The physical property of flowability and consistency becomes important and if and when such physical claims are made on the label of the product will it be necessary for the control laboratory to become a physical testing laboratory?

Calcium, phosphorus and salt are the three basic mineral components of feed which have been checked by control laboratories for years. Now, the trace minerals cobalt, iron, copper, iodine, manganese, zinc and others are being guaranteed and must be checked.

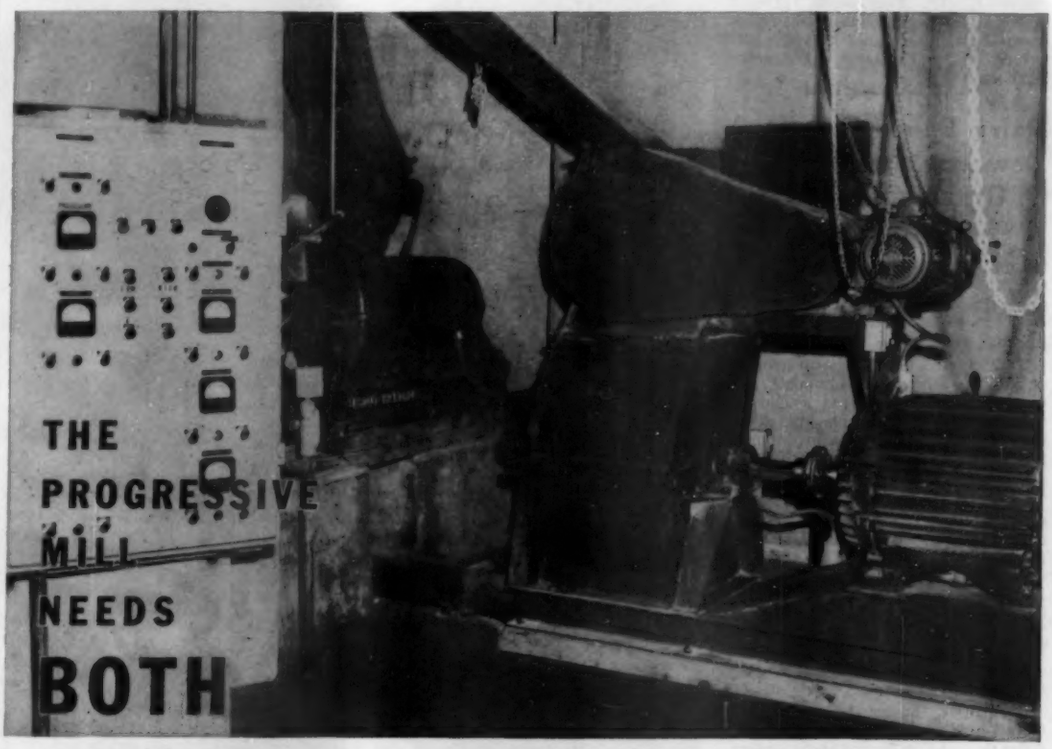
Animal Infections

Recently, there has been some evidence to suspect that certain feed ingredients may be the source of animal infections and disease. For example, there have been recent reports from several different investigators that certain animal by-product feed ingredients may be the source of salmonella infections in turkeys. This may mean that raw materials and processing procedures may be subject to investigation, testing and inspection to assure quality considerations.

What about energy claims which mean that fats and oils available for this purpose to the feed mixer must have quality control. We must consider special amino acid claims, the unidentified growth factors, enzymes, pigments, fermentations, mineral oils, mold inhibitors, flavoring and coloring agents and many more.

Add to all of these the tremendous new field of non-nutritional ingredients intended for growth stimulation, aid in the prevention and treatment of diseases, prevention of spoilage and rancidity, and affecting the physical properties and palatability of feeds. These require special consideration since they come under the purview of the Federal Food and Drug Administration because of their being classified as active drug ingredients and because of the possibility of residues in agricultural products produced. It should be specifically pointed out and emphasized at this point that the new Minnesota Feed Law takes special recognition of this situation under Section 5, of the law. A special paragraph states as follows: "If a commercial feed or a customer-formula feed contains a non-nutritive substance which is intended for use in the diagnosis, cure, mitigation treatment or prevention of disease or which is intended to affect the structure or any function of the animal body the commissioner may require the label or invoice to show the amount present, directions for use, and warnings against misuse of the feed."

At the present time, the Federal Food and Drug Administration has accepted about sixty different drug ingredients which can be used in animal feeds. Many of these can be used



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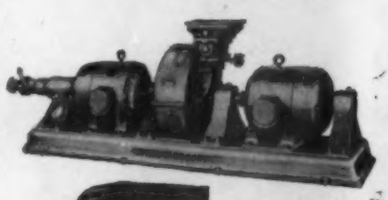

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in certain combinations at certain levels for certain purposes for certain animals. In each and every individual case, the label for the product must have special guarantees for the active drug ingredient content, special directions for use and warnings for certain situations and for misuse. There is no one general type of label that can be used. Each one is a special case and requires a special individual label. One can realize that this will become ever more complex when one drug manufacturer representative stated recently that the firm's research department is experimenting with 104 new drugs which may or may not find their way into animal feeds.

Up until about a year ago, just prior to the so-called "cranberry episode," it was the general feeling that feed quality controls were concerned only with proper labeling, proper identification and proper quality of a feed product that is being offered for sale. Our responsibility was completed so long as the label was correct as it applied to a specific product. It was the purchaser's responsibility to take the product from there and if he misused it the State Feed Control Division could do nothing about it. It also was the view that custom mixing of feeds and feed ingredients was the purchaser's business and he could order and have anything mixed, in whatever manner he saw fit, with the only provision that he be furnished with a proper invoice which would indicate the materials the mixer used in fulfilling the custom mixed order.

Attitude Changes

With the introduction of drugs and the known possibility of carryover into the flesh and products of birds and animals, this attitude is changing to the point where it now appears that the feed control official must definitely be concerned not only if such products are properly labeled but if they are properly used. We must now attempt to prevent the misuse of specialty additives so that a local agricultural industry will not be penalized in the same manner that the cranberry industry was penalized. For example, one of the warning statements required on feeds using certain drugs is referred to as "a discontinuance statement" such as "discontinue use of this medicated feed five days before slaughter for human food to permit elimination of the drug from the tissues." In a surprising number of instances, it is discovered that such a manufacturer does not provide a non-medicated feed to be used as a finishing feed during this particular discontinuance period and the feeder actually continues to use the feed until the time of slaughter.

The question then arises, should the feed control official refuse or cancel a registration for a medicated feed or seize such as medicated feed if the company did not have a drug-free feed to sell to its customers for this particular period? Possibly, it may be necessary to require an additional sale of non-medicated feed along with the medicated feed. This, of course, becomes a legal question and whether or not such a program could be enforced is not clear. Surely the industry and everyone concerned could only approve and encourage a program that would on one hand protect the consumer and on the other hand do everything possible to protect the market in avoiding a recurrence of the cranberry episode in the feed industry or a related agricultural industry. If such a situation should develop it might easily happen because some feeder did not follow these directions carefully and failure to remove a drug from a diet of birds and animals a few days before slaughter might easily result in the discovery of prohibited residues in human foods and we would have the cranberry situation all over again. I particularly wanted to emphasize this point today because our department wants to be of distinct help in a situation that could produce devastating effects if it were not met with courage.

Violating Regulations

I wish to emphasize one other point along this same line. We are aware that some feed mixers are actually violating the regulations in regard to the use of drugs in animal feeds by mixing the feed as a customer formula order and therefore avoiding the necessity of registering such a feed with our state division knowing that the registration would be refused. They use several arguments which they feel protect their position. For example, freedom of business should not be restrained; a veterinarian has prescribed that certain animals need a certain drug additive; their experience has proven that the non-permitted drug combination has proven beneficial to the birds or animals even though it hasn't been cleared by FDA. These arguments possibly would all be acceptable as far as the birds and animals are concerned but the feed mixer, veterinarian and experimenter forget that one additional responsible step in regard to residues in human food.

It is quite possible that a combination of sulfaquinoxaline and furazolidone in a turkey feed may be proven successful in Minnesota as a prevention for coccidiosis and blackhead. However, no one has determined what effect this drug combination may have as to possible residue content in the edible portions of the bird. The combination has not been accepted by Federal Food and Drug Administration when fed in combination with turkey feeds containing antibiotic feed supplements. No one has undertaken to clear this combination because of the cost in compiling such experimental data. You can imagine what would happen to the Minnesota turkey industry, which is number one in the United States, if it should suddenly be discovered that there was a residue in Minnesota turkeys and that all Minnesota turkeys were to be removed from the market until the various food control

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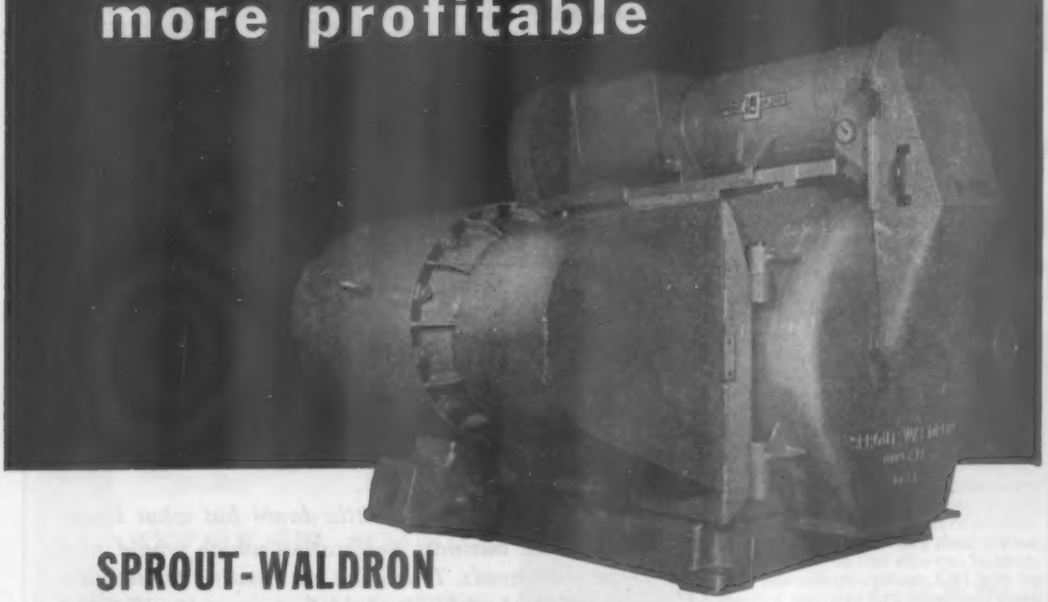

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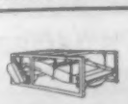

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agencies had had an opportunity to investigate and remove all contaminated carcasses.

Adulterated Feeds

I would also like to point out that treated grains which have been declared unfit for human use find their way into the feed mixing industry. Chemically treated grains are considered to be adulterated when used in animal feeds and state law prohibits the mixing of treated grains with regular grains in storage. If it is discovered that an entire bin of grain contains a small portion of treated grain which may or may not have inadvertently been added to that particular storage bin, the entire bin will be considered adulterated and all the grain therein cannot be used for animal feeds.

Quite often grain intended for human food becomes contaminated with bugs and weevils. In this case, the FDA will declare that the grain is unfit for human use and will suggest that it be channeled into the feed mixing industry. This is unfortunate. If we are interested in high quality feed, high quality products, increased feed efficiency, etc., certainly such a feed should not be used for animal feeding.

I could also point out to you that even though the grain with weevils would be harmless to animals it would still be considered adulterated and misbranded since the label of the product must state the content of the feed.

In this case, the label would have to read "ground corn with weevils" and, if mixed in an animal feed, be included in the ingredient listing. Consequently, in our modern use of grains it has now become just as important that the grain for animal feed must be just as suitable as the grain for human food.

Quite often, our office is asked, "Why can't a feed mixer include diethylstilbestrol or an arsenic-containing compound in animal feeds when a competitor down the road is permitted to do so?" It has to do with clearances obtained for these drugs from FDA prior to the passage of the so-called Delaney Amendment to the Food Additive Act. Manufacturers who have submitted application for use of these drugs after the adoption of the act have not as yet been granted clearance. This is a decision of FDA. The Minnesota Feed Division does accept registrations of commercial feeds which contain these compounds on the assumption that the manufacturer has received permission to make changes in his labels, having such prior sanction. Our state division can only call to the attention of the feed manufacturers the fact that they might be violating Federal Food and Drug laws by distributing products in this category.

USDA Buys $77,000 Worth of Dried Eggs

WASHINGTON—The U.S. Department of Agriculture has announced purchase of 67,275 lb. of dried whole egg solids at a cost of $77,000. The eggs will be delivered to states for distribution to needy persons and other eligible outlets.

The price paid this week was $1.1425 lb. for carload lots of egg solids packed in No. 2½ consumer-size cans. USDA accepted all of the product offered by three bidders.

This action brings total purchases to 9,687,600 lb. at a cost of $11,055,000 since resumption of the program June 22. Section 32 surplus removal funds finance the program.

Food Consultant Firm Opened in Arkansas

RUSSELLVILLE, ARK.—The N. R. Beck Co., a new firm that specializes in consultations for the prepared foods industry and will work closely with the poultry industry, has been established here.

The company is owned and operated by N. Robert Beck, who was recently the technical director and production manager of the Prepared Foods Division of Fox DeLuxe Foods at Dardanelle, Ark.

The firm is believed to be the first of its type in the nation.

Arkansas Valley Industries, Inc., Dardanelle, major integrated poultry and feed company, was one of the new organization's first clients.

Mr. Beck said his firm will offer services in product research and development, production, installation of new products and quality and cost control.

He said clients will be informed about technical advances in the industry and about advancements in the field of raw materials, packaging and equipment.

Mr. Beck said he founded the company because of the developments within the last decade in the prepared foods industry. He pointed out that prepared foods have become an essential part of the poultry industry because frozen items permit the expansion of new markets and the increase of profits and are a stabilizing factor for poultry producers.

Mr. Beck was president of Janet Davis Kitchens, Inc., Kenosha, Wis., from 1948 until 1953. He joined Fox DeLuxe Foods in 1953.

The new company is a member of the Institute of American Poultry Industries and will work closely with many basic suppliers, Mr. Beck said.

NEW BREEDING FARM—Reading the announcement of location of a Chas. Vantress Farms, Inc., breeding farm near Springdale, Ark., are, from the left: John Tyson, senior member of Tyson Feed & Hatchery, Springdale, Ark.; Gov. Orville Faubus and Charles Hailey, midwestern representative for Chas. Vantress Farms, Inc. The breeding firm has purchased a 265-acre farm near Springdale and plans to begin a construction program immediately for the new plant to be known as Vantress Farms of Arkansas, Inc. Mr. Hailey will be residential manager of the production unit.

Here's the professor's advice to the feed manufacturer . . .

. . . "I believe there is little doubt but what Feedstuffs is the business publication which would best serve your needs. This is an outstanding publication without rival within its field. I am sure it will fulfill your interest in 'ingredient market news, services available, technical information, innovations, etc.'"

So wrote a professor of animal science at a large midwestern university in response to a letter from a Jamaican feed manufacturer asking which magazine would be most helpful in his business.

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EXPERIENCED AND AGGRESSIVE FEED salesmen. Possible advancement to Sales Manager position. Well-known established feed company, Southwest. Give experience and reference. Desirable age: 35-45. All inquiries treated confidential. Address ad No. 6317, Feedstuffs, 612 Board of Trade Bldg., Kansas City 5, Mo.

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FEED MIXER, 1-TON CAPACITY, GUARANTEED first-class throughout, 5 H.P. motor drive. Address Ad No. 3479, Feedstuffs, Minneapolis 40, Minn.

WHIRLAWAY AIRBLAST CAR LOADERS, cast iron pulleys, new and used feed and elevator equipment. Hagan Mill Machinery, P.O. Box 574, Jefferson City, Mo.

X MAS TREE FLOCKING MACHINE—Floc-Flo machine, complete with spray gun, hose, supply tank and turntable. Urbana Feed & Seed Supply, Urbana, Ill.

FOR SALE—ONE UNION SPECIAL SEWING head No. 80600E. Used only short time. Still in crate from manufacturer after being checked and reconditioned. Call Mr. Allen, Hazel 6-3411, Dundee, Ill.

DAFFIN MOBILE MILL, 1953 GMC DIESEL, 2,900 hours, 1953 1-H truck, 22,000 miles. Good condition. Make an offer. Address Ad No. 6342, Feedstuffs, Minneapolis 40, Minn.

FOR SALE—1955 DAFFIN MOBILE MILL with molasses equipment. Mounted on 1955 Ford "600" truck. Both reconditioned, like new. Telephone 2601, Toews-Mehr Implement Co., Mankato, Minn.

FOR SALE — 1959 MOOERS MOBILE mixer and grinding mill, 3 ton capacity, mounted on 1959 Dodge truck. New diesel engine on mill in 1960. Call or write Huron Veterinary Clinic, Huron, S. D.; Phone Elgin 2-6063.

FOR SALE—80 FT. ALL STEEL ELEvator leg, with 6 ply 22" belt. Buckets 20"x8", legging 24"x12". 5,000 bushel capacity. 200 ft. Standard Conveyor Co. drag belt 20" wide, in sections, complete with frame. J. E. Hagan Mill Machinery, P.O. Box 574, Jefferson City, Mo.

FOR SALE—ENCLOSED MOTORS; RICHardson scale; truck scales; hammermills; oat crimpers; horizontal and upright feed mixers; sewing machines; elevator legs; screw conveyors; molasses mixers and pellet mills. J. E. Hagan Mill Machinery, Box 574, Jefferson City, Mo.

ALL STEEL BULK BOX AND TRUCK—Simonson combination (bulk and bag) box, one year old, automatic, 7-8 ton capacity, 13 ft. body. 1953 truck in A-1 condition, like new, cheap if taken at once—$2,300. Call or write Sleepy Eye Poultry Clinic, Sleepy Eye, Minn.; SWift 4-4551.

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FOR SALE—CALIFORNIA CENTURY 75 pellet mill complete with automatic motor starter, cooler, two shakers, blower, fines collector, vacuum system, collector, air lock, all motors to make a complete job, $10,000—located in Midwest. Write for details. Address Ad No. 6355, Feedstuffs, Minneapolis 40, Minn.

1959 DAFFIN MOBILE MILL, POWERED by G.M.C. 4-cyl. diesel, air unloading and the works. Like new condition. 26" Iowa portable mill, mounted on 1957 2-ton Chev. truck, powered by G.M.C. diesel, 2-ton vertical mixer and molasses blending equipment. Mooers Mfg. Co., Windom, Minn.

SITUATIONS WANTED

EXPERIENCED PH.D. NUTRITIONIST, broad background, desires diverse responsibility with feed, food or pharmaceutical firm. Address ad No. 6332, Feedstuffs, Minneapolis 40, Minn.

MACHINERY WANTED

WANTED TO BUY — RICHARDSON Scales, bag closing machines and other good mill, feed and elevator equipment. J. E. Hagan Mill Machinery, Jefferson City, Mo.

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Buys Equipment Firm

FT. ATKINSON, WIS.—The James Mfg. Co. here, a division of Rockwood & Co., has purchased Graham Metal Products, Ltd., Preston, Ont., reportedly Canada's largest manufacturer of poultry and hog raising equipment. The James firm claims to be the world's largest producer of poultry and livestock equipment.

The Canadian firm will operate under the name of Jamesway, Ltd., according to Robert A. Pritzker, president of Rockwood & Co. He said the purchase "is part of James' expansion program in the world market."

FEED FIRM CLOSING

LEWISTON, MAINE—The Farmers Feed & Supply Co. here held a "going out of business" sale when a variety of stock, including poultry feeders, poultry and dairy medications and other poultry and dairy equipment, was to be liquidated.

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R. P. Popino

Frank Cooper

2 Cyanamid Executive Promotions Reported

NEW YORK — Promotion of two key executives of American Cyanamid Co.'s agricultural division was announced recently by C. D. Siverd, divisional general manager.

Frank Cooper, formerly manager of services for the Cyanamid Agricultural Center, has been appointed division general services manager and will report to the general manager. Mr. Cooper, a science graduate from McGill University, Canada, joined Cyanamid in 1937, and since then has held several managerial positions within the Lederle and agricultural divisions.

Named to replace Mr. Cooper is R. P. Popino, who prior to this new appointment was plant manager for Cyanamid's Princeton plant. Mr. Popino's new title is manager, agricultural center services, reporting to the division general services manager. He is a graduate of the City College of New York, where he received his B.S. in chemistry. Mr. Popino joined the company in 1945, and since then has held several managerial positions in plant processing, production and management.

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Egg Conference Set For North Carolina

RALEIGH, N.C.—An Egg Industry Conference will be held on the campus of North Carolina State College here Nov. 15-16 under sponsorship of the department of poultry science.

Topics and speakers for the first day's program include: "North Carolina and the National Egg Market," C. K. Laurent, general manager, Marbut Milling Co., Augusta, Ga., and within a panel discussion on egg prices: "How to Improve Market News Quotations," C. A. Middleton, supervisor, Market News, Virginia Department of Agriculture, Richmond; "An Egg Buyer Looks at Prices," William Groff, head egg buyer, American Stores, Philadelphia, and "A Price Reporter Looks at Prices," Gordon Urner, vice president, Urner-Barry Co., New York.

On the second day's program are: "Pricing in the New York Egg Market," L. C. Giffin, U.S. Department of Agriculture, reporter-in-charge, New York Dairy and Poultry Market News office, New York; "Financing Poultry Enterprises," Fred A. Mangum, extension farm management instructor, North Carolina State College; "Moving with the Brakes On—A Look at the Competitive Position of Southern Eggs," Harold E. Ford, executive secretary, Southeastern Poultry and Egg Assn., Decatur, Ga., and "What Can We Do About Egg Prices?" Dr. R. A. King, agricultural economics, North Carolina State College.

Vineland Appoints Sales Representative

VINELAND, N.J.—Naming of Edward Harris as sales and service representative in the western division of Vineland Poultry Laboratories has been announced by Dr. Tevis M. Goldhaft, director of the firm which is headquartered here.

Edward Harris

Mr. Harris will be in charge of sales and service in Texas, working under the supervision of Donald M. Taylor, western division sales manager.

Prior to joining the Vineland Laboratories staff, Mr. Harris headed production and sales operations for a feed mill at Port of Spain, Trinidad, West Indies, and earlier, served as field representative for a large feed mill in Texas.

He is a native Texan and a graduate of Ohio State University with a degree in animal husbandry.

Florida Poultry Group's Winter Meeting Set

ORLANDO, FLA. — Florida State Poultry Producers Assn. will hold its winter meeting Jan. 13-14 at the Cherry Plaza Hotel here, it was announced by J. E. Harvey, president.

Wilfred Hedges, Winter Park, has been named convention chairman, according to Mr. Harvey. Convention activities will include: Commercial exhibits, educational programs, Miss Florida Egg Contest, dance, Good Florida Egg breakfast, special activities for the ladies, membership meeting, social hour and banquet.

NEW DISTRIBUTOR

CEDAR RAPIDS, IOWA — Valley Truck Equipment Co., Valley Park, Mo., has been named a new distributor for Highway Equipment Co., Cedar Rapids.

A Major Breakthrough in Moisture Testing

The new Burrows Moisture Recorder—a major breakthrough in testing of all grains.

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Georgia Feed Men Approve Poultry Feeding Standards

GAINESVILLE, GA.—Georgia feed dealers, attending a special meeting here on poultry condemnations, approved a set of minimum standards for profitable production, including recommendations on feeding. The Georgia Feed Dealers Assn. sponsored the event in cooperation with the extension service and Georgia Poultry Federation.

A program was discussed and pledges were made to see that contract growers put the minimum practices into operation as soon as possible.

The association also made preliminary action toward holding a series of workshops for servicemen and management heads. These meetings will take place as soon as dates can be arranged, it was announced.

The meeting on condemnations was one of the largest held recently by feed dealers in the state. It was estimated that 50% of the state's production of broilers was represented.

Dr. Clyde Driggers, chairman of the University of Georgia's poultry division, said he believes the federal inspection program is a healthy and wholesome thing if properly carried out.

The minimum standards practices adopted at the meeting included such things as feeder space, watering space, heating, thorough cleaning of houses between broods and adding four inches of clean and dry new litter.

Members were told that adoption of the recommendations could serve to reduce condemnations in Georgia. It was pointed out that studies have been made in other states where the practices have been adopted and they show a decrease in condemnations.

Members were urged not to place chicks with growers who will not cooperate in following the recommendations.

Seek Greater Yield From Beef Cattle

BROOKINGS, S.D. — Beef cattle during the next 20 years will have to yield more if consumer requirements for this meat product are to be satisfied. Dr. C. A. Dinkel, animal husbandman at the Agricultural Experiment Station at South Dakota State College, said that "we must increase the yield of each individual animal by about 25%."

Writing in the fall issue of South Dakota Farm and Home Research, Dr. Dinkel reported estimates of 50% increases in beef requirements of consumers during the next 20 years.

Half of this increase can come from increased numbers of beef cattle, he said, but the other half must come from increased yields.

To fill the order, he said, will require every possible efficiency and improvement in management, feeding, breeding, marketing and processing.

"Recent research indicates that there is still room for selection to improve many of the characteristics important to meeting the anticipated demand," Dr. Dinkel said.

More lean meat distributed in higher proportion on the high-priced cuts and higher dressing percentages are some industry goals to do this, he said.

However, he added, these goals must be reached without sacrificing the "production traits" so important to the feeder and breeder. In fact, these traits will have to be improved, he commented.

"Production traits" include faster gains, more efficient gains, hardy constitution, high fertility, good mothering ability and rapid growth rate.

Dr. Dinkel, who is in charge of beef breeding research at the station, said that research efforts are trying to establish:

(1) The relative importance of heredity and environment in determining the important beef traits of both live animal and carcass;

(2) The relationships among the many important traits of beef cattle in order to evaluate any possible antagonisms that might exist; and

(3) More efficient methods of selection which will help the breeder in the selection of his breeding stock.

He said that purebred breeders and commercial producers can now participate in performance testing programs to help in selecting better yielding breeding stock. The program consists of keeping records of the existing herd on a systematic basis.

Quaker Oats Salesman Gets District Honor

SEDALIA, MO.—A. J. Harlan has been named "Man of the Year" by the Quaker Oats Co., St. Joseph, Mo.

The annual district honor is a recognition award for outstanding sales achievement. Mr. Harlan has sold more than 250,000 tons of feed in 25 years with the company. Mr. and Mrs. Harlan were entertained by the Quaker Oats Co. recently at its Chicago office.

Egg Group Officers

RAPID CITY, S.D.—During the annual convention here Oct. 14, the Black Hills High Quality Egg Producers Assn. elected Harold Bauer, Enning, president; Mrs. Wayne Garrison, Wall, vice president; Charles Johnson, Rapid City, secretary-treasurer; and Mrs. Leslie Shaw and B. H. Arends, both of White Owl, to the board of directors.

GRAND OPENING HELD

EDWARDSBURG, MICH. — A grand opening was held here recently by Cleveland & Son, formerly the Wendt Grain Co.

TESTS ON CHICKS SHOW THAT *Vitamin A* STRENGTHENS THE BARRIER AGAINST INFECTION

Mucous membranes lining the gastrointestinal and respiratory tracts are the primary barriers which prevent the entry of infective agents into the body proper. Vitamin A is critically involved with the defense mechanism of the mucous membrane. Adequate vitamin A keeps the mucosa healthy, enables the chick to resist infection. Insufficient vitamin A renders the chick liable to infection through both respiratory and intestinal membranes.

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Reserves of vitamin A are the essential safety factor against stress. Reserves are stored in the liver, but only after other tissues are adequately supplied. Therefore, when chicks show good liver storage, it is a sign that other tissues are saturated with vitamin A.

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Adequate vitamin A stored in the liver is an indication that other tissues are fully supplied. For example...
Respiratory membranes, where vitamin A helps combat colds, nutritional roup, air sac infection (CRD).
Intestinal membranes, where vitamin A helps strengthen the barrier against coccidiosis, Capillaria worms, intestinal enteritis.

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AFMA

(Continued from page 4)

where no therapeutic claims are made. "Present FDA philosophy would tend to favor a quantitative declaration at some future date, a philosophy which is not shared by AFMA," a recent AFMA bulletin stated.

Rules for other levels and uses of antibiotics remain the same as in 1960.

Summary

AFMA summarized the effects of the antibiotics identification change this way:

"1. The term 'antibiotic feed supplement' has been dropped—and in its place you will state the name of the antibiotic or antibiotics used.

"2. The quantity of antibiotics does not have to be stated—but if declared, it should be so done under the guaranteed analysis section.

"3. All other rules regarding antibiotic labeling remain the same."

AFMA notes also that decisions reached by AAFCO at its latest annual meeting were "widespread enough so that they probably will affect a majority of all registrations and tags."

AFMA advises: "A check with an AAFCO officer revealed a general understanding on the part of control officials that a reasonable length of time after Jan. 1, 1961, would have to be allowed in which to implement definition changes due to the relatively short interval of time remaining before Jan. 1, the official effective date for definition changes.

"It was noted, however, that new definition charges should be carried out as promptly as possible. It would be well for feed men to check with the officials of states in which they are distributing feed to determine whether they will individually set a deadline by which the new terminology must be in effect."

(A brief summary of ingredient definition changes approved by AAFCO appeared in the Oct. 15 issue of Feedstuffs. Feedstuffs "Feed Control Comment" columnist, Bruce Poundstone, AAFCO secretary, comments in this issue about changes in the antibiotic definition and the status of the feeding cane molasses definition, both of which have attracted considerable discussion.

(Feedstuffs will publish in its Nov. 5 issue an official transcript of definition changes approved by AAFCO at its latest annual convention. Also appearing in that issue will be a report of AAFCO's Medicated Feed Labeling Committee.)

CONCENTRATES

(Continued from page 1)

al economics division, notes that the 1960 corn crop, estimated in September at about 4.2 billion bushels, is a little below the record crop last year. The carryover into 1960-61 is expected to total over 1.8 billion bushels, which would bring the total supply up to a little more than 6 billion bushels—4% larger than last year and a third above the 1954-58 average.

USDA estimates the sorghum grain supply at close to 1.2 billion bushels, nearly 100 million above last year and more than double the five-year average.

The oat supply is about the same as the small supply of 1959-60. And barley supplies are 5% smaller than last year, but 8% above the five-year average.

Back to what Mr. Clough says about the record corn supply:

Domestic use and exports of corn have been increasing along with production in recent years. Even so, he notes, the increase in corn disappearance in recent years has failed to keep pace with rising production.

Since 1952, production has exceeded total domestic use and exports each year at an average annual rate of about 170 million bushels, or around 5%.

"The prospective record supply for 1960-61 would be sufficient to maintain disappearance at the current high level and again leave a larger carryover at the close of the marketing year," Mr. Clough comments.

Feed manufacturers have been concerned about the prospects of another "wet corn" harvest. And rightly so. Farmers with wet corn try to get rid of what they can't store as fast as they can by feeding it in greater than usual amounts to their livestock. This cuts into their demand for formula feeds.

Some of the fear has been erased by exceptionally mild weather this fall. But, says, Mr. Clough, "even with normal weather this fall, there is likely to be more than the usual quantity of low-quality corn."

This, of course, does not mean that the "low quality" will come only from soggy ears. It could mean, also, that the late corn crop start and various conditions throughout the growing season will show up in other ways.

ENFORCEMENT

(Continued from page 1)

there is not much which the industry can do about certain inequities caused by the food additives amendment and its interpretation, but correction of some of the problems is possible through congressional action.

Aim for Compliance

Meanwhile, he said, the feed man should be doing all that he can to assure compliance and to be prepared for inspections. And, if these things are done, mill operators need not fear visits by FDA inspectors.

"The FDA inspector's mission," Dr. Wilgus noted, "is to ascertain that all requirements for proper receiving, storage, weighing and mixing of drug substances are being met and that the feeds containing these drug substances are properly labeled to assure that the feeder is fully informed on their correct usage. Adequate records must substantiate compliance with these requirements. Procedures must be such that identity of each drug is maintained from receipt into the finished feed."

Dr. Wilgus pointed out that every feed manufacturer—whether mixing feed for his own use or for sale and whether selling only within state lines or across them—is subject to inspection.

"Treat this FDA representative courteously, calmly and cooperatively," Dr. Wilgus advised. "Receive his suggestions with an open mind. Should a suggestion appear impractical, explain why you so consider it. He is as eager to learn as you should be. Suggestions should be mutually helpful. And, after all, he is performing his assigned duty, prescribed under the law that we, as citizens, requested."

FDA Views

McKay McKinnon, Jr., director of FDA's San Francisco district, reviewed various provisions of FDA law and regulations, including the food additives amendment and Delaney clause, pesticide residue regulations and certain aspects of medicated feed controls.

For those not entirely familiar with it, he summed up the food additives amendment as follows: "Under the law, any substance to be added to animal feed that is not itself generally recognized as safe must be shown to be safe for the animal under the intended conditions of use. Where this cannot be demonstrated, authorization to use the additive will be denied forthwith. Where safety to the animal can be established, then the petitioner must demonstrate either that the edible products of the animal are free of any residues of the substance and its degradation products, or where such residues are found, that they will be safe for consumption by man or other animals."

Delaney Clause

Commenting on the Delaney clause, Mr. McKinnon pointed out that the government is on record as favoring it. However, he added, "we do hope that that clause will be amended to authorize the enforcing agency to take steps which will iron out the inequities which exist because some firms, with prior authority by virtue of effective new drug applications, can continue to add a product like stilbestrol to feed, whereas their competitors cannot do so now because of the restriction implicit in the Delaney clause which denies such authorization. Secretary Flemming has recommended to the Congress that the clause be modified so that it will be applicable, in the case of animal feed, where there is evidence to demonstrate that the additive does not cause cancer in the animal and is not present in the edible products of the animal at the time of slaughter. Until such modification, however, no regulation may be issued by the secretary providing for the use in feed of an agent which falls within the restriction imposed by the Delaney clause."

Mr. McKinnon commented on the law and regulations applied to pesticide residues as well as feed medicaments. FDA, he explained, will not establish a tolerance for a toxic compound in forage if the feeding of this forage gives residues in animal tissues, unless the petitioner has presented evidence to show that the residues in milk and meat are safe, and FDA simultaneously grants tolerance for the residues in milk and meat.

Thus far, he emphasized, no tolerance for a chemical residue in milk has been granted.

Mr. McKinnon quoted remarks by George Larrick, FDA commissioner, indicating the hope that meetings and joint educational efforts between FDA and industry groups can help provide an understanding of problems and provide a sound basis for voluntary cooperation and compliance.

Veterinarian's Comments

Dr. S. A. Peoples of the University of California veterinary science department said that it probably never will be possible to free foods of all substances, but it should be possible to find safe doses and to work for a more reasonable regulatory problem.

He commented at some length on the question of antibiotics in milk and mentioned that the incidence in California has decreased remarkably, and in most cases the situation is satisfactory. Actually, he said, the public never really was exposed to dangerous concentrations of drugs. The risk never was one to arouse anxiety, but there has been some anxiety, and some people now are afraid of milk. Dr. Peoples discounted some of the reports and fears of drugs in milk and the development of resistance.

He also commented on the question of pesticide use and residues in forage and milk. In this connection, he noted that other foods can have tolerances which are proven safe but that milk has no legal tolerance.

Dr. Peoples discussed some studies of the relationship between DDT on hay and in milk, and he noted that at certain levels, the animal body will break down DDT and excrete it and there will not be any in milk. He said it has been proved that at levels of up to 1 or 1.5 ppm, the DDT is destroyed by the cow.

Criticizes Delaney Clause

The Delaney clause, Dr. Peoples observed, is resented by the professional pharmacologist since it removes the right to use judgment in evaluating a hazard. Just because large doses of a substance cause one effect, he said, it does not mean that lower doses cause the same effect. He cited vitamin D as an example. If this valuable nutrient caused cancer, as it causes calcification at high levels, it would be illegal under the Delaney clause, even though it is vital at low levels.

The body, he said, can take care of any poison if the level is not too high.

In connection with toxicity tests, he said, that one cannot extrapolate from the rat to the cow, so how can one go from the rat to the human?

Questions and Answers

Dr. Wilgus moderated a question and answer session in which Mr. McKinnon and Dr. Peoples also took part.

Following are some of the questions and answers:

Q. How can FDA regulate amounts of medicaments given animals if the farmer can purchase them at will?

A. It was indicated that FDA probably would have to show an illegal amount was in the product when it reached the FDA regulatory level. FDA, it was said, is still "far from having enough appropriations to work at the farm level."

Q How will FDA regulate a farmer who mixes his own feed?

A. If products originate within a state and are marketed within the same state, FDA is not involved. But if any ingredients have an interstate origin, the feed mixture comes under the federal statute. However, because of manpower and appropriation limitations on FDA, there would have to be a "tough situation" requiring action before the government would move on individual farm situations.

Q. A feed mill has a call from a customer who desires to have a new drug, requiring a new drug application (NDA) or antibiotic form 10, mixed in his feed. A veterinarian has recommended use of the drug. Does the feed man have to obtain an effective supplemental NDA, or can he mix to the veterinarian's prescription?

A. If the drug use represents an actual prescription by the vet for a specific patient or group of patients, the feed and mill do not come under FDA jurisdiction in this case.

Q. Can one get copies of FDA regulations and actions?

A. A feed manufacturer can ask his FDA office to have him put on a mailing list to receive FDA material. Also, a copy of the complete regulations may be purchased from the government.

Q Can a feed manufacturer have an FDA inspector go over his mill and make suggestions?

A. No visits of mills are made by prearrangement, but the feed man can go to his district FDA office for consultation or he can write to FDA for opinions.

Q. How many mills will be inspected?

A. In the current fiscal year, FDA nationally is said to have a budget for the equivalent of 10 man-years of inspection, or about 275 inspections. However, any particular problems could lead to more inspection activity, and it is believed that there will be greater attention to the feed industry in the future.

Q. What can one do to be able to get dienestrol diacetate (Lipamone) for poultry?

A. At present a mill cannot obtain a supplemental NDA on this product because it is an estrogen. Those with prior clearance may continue using it. This was termed on "untenable situation."

Q. Can one use a drug without a permit if it is prescribed by a vet?

A. The FDA official said that a vet can prescribe a drug for a sick animal, but its use is prohibited if it is detected in milk.

Q. What is the difference between a supplemental NDA and antibiotic form 10?

A. The two orders are said to correspond closely, but with Form 10, consideration must be given to efficacy, while with an NDA, safety is the only function.

Q. Will children develop immunity to an antibiotic at a low level in milk if the milk is drunk over a long period?

A. No immunity will develop if the antibiotic is at a low level.

The FEED MARKET

PRICE QUOTATIONS, MARKET TRENDS
OF PRINCIPAL INGREDIENTS

NOTE: Quotations on feed ingredients shown in these and adjoining columns are wholesale prices, per ton, bulk, for prompt delivery, unless otherwise noted. They are the latest quotations available from Feedstuffs correspondents and are not necessarily those in effect on date of publication. The prices represent fair average trading values and do not necessarily represent extreme low or high levels at which individual sales might have occurred. A descriptive summary of supply and demand factors prevalent in the feed market appears on page 2.

A AND D FEEDING OIL

Chicago: Demand fair; trend steady; supply ample; straight A feeding oil, with 10,000 units vitamin A per gram, 7@7¼¢ a million units of vitamin A; l.c.l., packed in 55 gal. drums, f.o.b. Chicago, drums included.

Minneapolis: Demand fair; supply ample; 10,000 A 31¢ lb.; 300 D, 2,250 A 17½¢ lb.; 300 D, 1,500 A 16¢ lb.; 300 D, 750 A 15⅝¢ lb.

ALFALFA MEAL

Omaha: Demand slow; trend good; supply ample; 17% dehydrated, 100,000 A units, bulk pellets $45; sacked meal $50, Omaha basis.

Chicago: Demand good; trend higher; supply fair; dehydrated, 17% protein, 100,000 units vitamin A $46.50@48.

Portland: Demand fair; trend steady; supply adequate; $46@69.90, sacked.

Memphis: Demand fair; trend steady to higher; supply ample; dehydrated, 17% protein, guaranteed 100,000 units vitamin A $49.

Philadelphia: Demand slow; supply fair; 17% dehydrated $54.50.

Denver: Demand fair; trend steady; supply ample; dehydrated meal, sacked $51; bulk pellets $47.80.

Cincinnati: Demand fair; trend steady; supply adequate; 17% dehydrated, 100,000 vitamin A $53@54.

Ft. Worth: Demand of dehydrated good, suncured fair; supply sufficient; sacked: dehydrated, 17%, 100,000 A $55, truck or rail; suncured: 13% ¼-in. grind No. 1 $48, truck; 15% fine ground, dry $50; with 2% fat added $52, rail or truck.

Los Angeles: Demand moderate; trend unchanged; supply adequate; dehydrated meal, 17% protein, 100,000 A $51; dehydrated pellet meal, 17% protein, 100,000 A $53@54; suncured meal, 15% protein $45@46; suncured crumbles, 15% protein $47@48.

Kansas City: Demand fair; trend firmer; supply ample; 17% dehydrated alfalfa, 100,000 A on arrival, pellets $45@46, reground pellets $46@47; 18% dehydrated alfalfa, 125,000 A on arrival, pellets $46@49; reground pellets $47@50; 20% dehydrated alfalfa, 150,000 A on arrival, pellets $46@50, reground pellets $48@51; suncured alfalfa, demand improved, supply adequate, 13% pellets $35@37; No. 1 ¼-in. $40, sacked.

St. Louis: Demand slow; trend firmer; supply limited; suncured, 13% fine, sacked $48.50; dehydrated, 17%, 100,000 A pellets, demand fair, trend firmer, supply ample, bulk $48.

Seattle: Demand fair; trend firm; supply good; 15% protein suncured $49, 150,000 A unit dehydrated $70, both delivered truck loads, sacked.

Minneapolis: Price up about $2; 17% dehydrated, 100,000 A units, reground pellets $51, bulk, delivered Minneapolis; oiled reground pellets $53.

Buffalo: Demand fair to poor; trend steady; supply adequate; $56.50, sacked, Boston.

ANIMAL FAT (STABILIZED)

Ft. Worth: Demand fair; supply sufficient; prime tallow, tank cars 5¾¢ lb.; drums 6¼¢ lb.; f.o.b. north Texas packing plants with returnable drums.

San Francisco: Demand fair; supply ample; bleachable fancy 6¢ lb.; yellow grease 4¾¢ lb.

Louisville: Demand improved; trend steady; supply good; prices down ½¢ gal. or more; bleachable white 5¾¢ lb., white tallow 6¢ lb., yellow grease 5½¢ lb., in tanks.

Chicago: Demand good; trend firm; supply fair; tank truck or carlots, bleachable fancy tallow $5.75 cwt., yellow grease $5 cwt.

Ogden: Supply ample; $5.25 cwt.

Kansas City: Demand slow; trend steady; supply ample; stabilized prime tallow 5@5¼¢ lb.

Salisbury, Md.: Demand excellent; supply limited; 5½¢ lb., f.o.b.

Atlanta: Demand good; trend steady; supply ample; 5¢ lb., f.o.b. Alabama and Georgia processing plants.

St. Paul: Demand good; supply ample; price up ¼¢ to 5¾¢ on bleachable fancy, f.o.b. producer's plant.

BARLEY FEED

Baltimore: Demand fair; trend steady; supply moderate; $44.50, sacked.

Chicago: Demand fair; trend firm; supply adequate; $34, sacked.

Denver: Demand fair; trend steady; supply tight; rolled $2.05 bulk, $2.25 sacked.

Portland: Demand good; trend steady; supply adequate; $44@44.50.

San Francisco: Demand fair; supply ample; rolled $58, ground $57.

Seattle: Demand and supply good; trend firm; $46, truck lots.

Ogden: Supply ample; rolled $45@46, whole $40@41.

Philadelphia: Demand slow; supply fair; $41.50.

Los Angeles: Demand slow; trend firm; supply adequate; standard rolled $3 cwt., standard ground $3 cwt., both sacked.

BENTONITE (SODIUM)

Chicago: Demand fair; supply ample; trend steady; f.o.b. Wyoming and South Dakota shipping points: 200 mesh $14 and net $13.75; fine granular (80 to 100 mesh) $14.25 and net $14; granular, 30 mesh $16.50 and net $16.25.

Cincinnati: Demand steady; supply adequate; f.o.b. Cincinnati, minimum 30 ton lots: 80 granular $31.50, less than car lots $40; 200 mesh fine $31, less than car lots $40.

Denver: Demand fair; trend steady; supply good; $24.50, warehouse.

BLOOD FLOUR

Louisville: Demand fair; trend steady; supply good; $75@80, sacked.

BLOOD MEAL

Ogden: Supply good; $80.

Louisville: Demand fair; trend steady; supply good; $75@80, sacked.

Chicago: Demand fair; trend steady; supply moderate; 80% protein $115, sacked.

Omaha: Demand and trend good; supply plentiful; 80% $85, sacked, Omaha.

Portland: Demand fair; trend steady; supply ample; $110, sacked.

San Francisco: Demand and supply fair; $4.75 a unit of ammonia, sacked.

Los Angeles: Demand good; trend firm; supply very scarce; $5.40 a unit of ammonia, sacked.

BONE MEAL (STEAMED)

Cincinnati: Demand better; trend steady; supply ample; $90, sacked, Cincinnati.

Louisville: Demand slow; trend steady; supply ample; $80@85, sacked.

Chicago: Demand good; trend higher; supply fair; $95, sacked.

Portland: Demand fair; trend steady; supply adequate; $97@97.50, sacked.

San Francisco: Demand good; supply ample; $75, sacked.

Denver: Demand normal; trend steady; supply ample; $112.50.

Ft. Worth: Demand fair; supply light; $100, sacked, f.o.b. Ft. Worth, local manufacture.

Los Angeles: Demand fair; trend steady; supply limited; imported $80.75, 20 ton lots, sacked.

Seattle: Demand good; trend firm; supply limited; $92, f.o.b. car Seattle, sacked.

Buffalo: Demand fair; trend strong; supply light; $97, sacked.

BREWERS DRIED GRAINS

Cincinnati: Demand poor; trend higher; supply adequate; $52.

San Francisco: Demand fair; supply ample; $51, sacked.

Ft. Worth: Demand fair; supply sufficient; 26% protein $49.50@50.50.

Los Angeles: Demand fair; trend unchanged; supply adequate; $50.

Chicago: Demand good; trend higher; supply fair; 26% protein $44.50@45.

Louisville: Demand fair; trend steady; supply good; $54, sacked.

Philadelphia: Demand fair; supply light; $56.

St. Louis: Demand good; trend firm; supply limited; $42.

BREWERS DRIED YEAST

Cincinnati: Carlots 10¢ lb.; 5 ton lots 11¢ lb.; ton lots 11½¢ lb., all sacked.

San Francisco: Demand fair; supply good; 10¢ lb., sacked.

Denver: Demand fair; trend steady; supply ample; 9¢ lb.

Louisville: Demand fair; trend steady; supply good; 10@10½¢ lb., sacked.

Portland: Demand fair; trend steady; supply ample; 11@12½¢ lb.

Seattle: Demand slow; trend steady; supply ample; $12 cwt., sacked.

Omaha: Demand and trend fair; supply plentiful; 11¢ lb.

Los Angeles: Demand steady; trend unchanged; supply limited; 10¢ lb., 5 ton lots; 11¢ lb., 1 ton lots; 12¢ lb., less than ton lots; all sacked.

Chicago: Demand fair; trend steady; supply ample; 9½@10¢ lb., carlots, sacked; 9½@12½¢ lb., l.c.l.

Milwaukee: Demand fair; trend steady; supply ample; 10½@12½¢ lb., ton lots, sacked.

St. Louis: Demand fair; trend firm; supply ample; 9½@10¢ lb., carlots, sacked; 10½¢ lb., ton lots; 11½¢ lb., less than ton lots.

Pittsburgh: Carlots 10¢ lb.; 5 ton lots 11¢ lb.; ton lots 11½¢ lb., all sacked.

New Orleans: Carlots 10¢ lb.; 5 ton lots 11¢ lb.; ton lots 11½¢ lb., all sacked.

New York: Carlots 9½¢ lb.; 10 ton lots 10¢ lb.; 5 ton lots 10½¢ lb., ton lots 11¢ lb., all sacked, f.o.b. New Jersey.

Buffalo: Demand slow; trend steady; supply ample; $9.05 cwt.

BUTTERMILK (CONDENSED)

Chicago: Demand quiet; trend firm; supply fair; 500 lb. barrels $3.25@3.50 cwt.

San Francisco: Demand fair; supply good; $5 cwt., drums.

Philadelphia: Demand slow; supply fair; $4.25 cwt.

Louisville: Demand dull; trend steady; supply light; $4.25 cwt., in paper drums.

Ogden: Supply good; $4.40 100 lb. drum.

Los Angeles: Demand slow; trend unchanged; supply adequate; 5½¢ lb., 100 lb. lots; 4½¢ lb., 500 lb. lots; both in barrels.

CALCITE CRYSTALS AND FLOUR

(All prices net, sacked, including freight)

New York: Crystals $16.26, flour $10.28.
Buffalo: Crystals $17.11, flour $11.11.
Toledo: Crystals $18.96, flour $12.96.
Boston: Crystals $17.63, flour $11.63.
Lime Crest, N.J.: Crystals $11.50, flour $5.50.

CALCIUM CARBONATE

Seattle: Demand and trend steady; supply good; $14, ex-warehouse, sacked.

Cincinnati: Demand fair; trend steady; supply adequate; $7@7.50 cwt.

Los Angeles: Demand fair; trend steady; supply adequate; flour $10.15, 10 ton cars, meal $11.15, 20 ton cars, both sacked.

Chicago: Demand fair; trend steady; supply ample; fine grind, plain, 100 lb. bags $9.54; bulk, in hopper cars $7.54; bulk, in boxcars $8.04; granular grind $1 premium.

Minneapolis: Fine grind, 50 lb. bags $12.75; 100 lb. bags $12; bulk, boxcar $10.50; bulk, hopper $10; coarse grind $1 premium, delivered Minneapolis.

CHARCOAL

San Francisco: Demand steady; supply ample; $141, sacked.

Chicago: Demand fair; trend firm; supply fair; 50 lb. multiwalls $110.

Los Angeles: Demand slow; trend unchanged; supply adequate; hardwood poultry: $156, less than ton lots; $144.40, ton lots; both sacked.

COCONUT OIL MEAL

Portland: Demand slow; trend steady; supply adequate; $63.

San Francisco: Demand fair; supply ample; solvent $52, expeller $69.

Los Angeles: Demand limited; supply ample; trend steady; copra cake $63.

Seattle: Demand fair; trend weak; supply ample; solvent type $58, sacked, f.o.b. car Seattle.

CONDENSED FISH SOLUBLES

Denver: Demand light; trend weak; supply ample; 3¢ lb., West Coast.

Los Angeles: Demand fair; trend unchanged; supply adequate; 2¢ lb.

CORN GLUTEN FEED AND MEAL

(All quotations for all cities are bulk basis, sacked basis $5 more)

Minneapolis: Feed $43.60, meal $64.60.
Atlanta: Feed $47, meal $68.
Birmingham: Feed $45.60, meal $66.60.
Boston: Feed $48.50, meal $69.50.
Chicago: Feed $37, meal $58.
Cleveland: Feed $44.90, meal $65.90.
Denver: Feed $47.20, meal $68.20.
Ft. Worth: Feed $45.70, meal $66.70.
Indianapolis: Feed $42.20, meal $63.20.
Kansas City: Feed $37, meal $58.
Louisville: Feed $44.60, meal $64.60.
New Orleans: Feed $46.90, meal $67.90.
New York: Feed $48.10, meal $69.10.
Norfolk: Feed $47.50, meal $68.50.
Philadelphia: Feed $47.70, meal $68.70.
St. Louis: Feed $37, meal $58.

CORN OIL MEAL

Cincinnati: Demand fair; trend steady; supply adequate; $43.

Seattle: Demand good; trend easy; supply ample; $52, carlots.

Louisville: Demand slow; trend easy; supply light; $51.55, sacked, off 55¢.

COTTONSEED OIL MEAL

Chicago: Demand good; trend upward; supply fair; Memphis basis, hydraulic $55.50.

Omaha: Demand fair; trend good; supply ample; 41% solvent $66, delivered Omaha.

Ogden: Supply good; 41% $63@65.

Memphis: Demand fair; trend steady to higher; supply ample; prime 41% protein, old process $55; new process, 41% solvent $52.

St. Louis: Demand slow; trend steady; supply ample; solvent $55.

Philadelphia: Demand slow; trend unsettled; supply light; $68, 30 ton cars.

Louisville: Demand fair; trend unsettled; supply normal; old process $65, up $2.90; new process $61, down $1.10; both sacked.

Portland: Demand good; trend steady; supply adequate; $63@64.

Denver: Demand and supply fair; trend steady; $59.

San Francisco: Demand fair; supply ample; 41% $57.50; 44% $61.

Wichita: Demand fair; supply ample; 41% old process $67, sacked.

Los Angeles: Demand slow; trend firm; supply ample, but tightly held; $54.

Cincinnati: Demand poor; trend steady; supply adequate; $60.

Ft. Worth: Demand fair; supply sufficient; 41% old process $61, f.o.b. mills Ft. Worth; carlots, solvent 2% fat added, $56.50, November-December, delivered Ft. Worth; pellets $2 additional, hulls $19.

Seattle: Demand fair; trend firm; supply ample; $68, f.o.b. car Seattle.

Kansas City: Demand fair; trend stronger; supply adequate; 41% old process $56@56.50; solvent process $51@51.50, Memphis.

Atlanta: Demand good; trend steady; supply limited; 41% $59, South Carolina and Georgia; $58, north Alabama; $56, Mississippi and Tennessee producing mills.

Buffalo: Demand fair to poor; trend steady; supply adequate; $75, sacked, Boston.

CURACAO PHOSPHATE

New York: Minimum 14% phosphorus $46.50 sacked, $43.50 bulk, f.o.b. New Orleans, Jacksonville and Philadelphia.

D ACTIVATED ANIMAL STEROL (POWDERED)

Cincinnati: Demand fair; trend steady; supply ample; 1,500 ICU 11@12¢ lb.; 3,000 ICU 10¢ lb., warehouse.

Kansas City: Demand fair; trend steady; supply ample; 1,500 ICU 9⅝¢ lb.; 3,000 ICU 11¢ lb.

D ACTIVATED PLANT STEROL (POWDERED)

Chicago: Demand fair; supply ample; 4,000,000 U.S.P. units per lb., 15¢ lb. in ton lots, less than ton lots 17¢ lb.; 12,000,000 units per lb., 5 tons to a carload 28¢ lb., ton lots and less 30¢ lb.

DEFLUORINATED PHOSPHATE

Coronet, Fla.: Minimum phosphorus 18%, minimum calcium 31%, maximum calcium 34%, maximum fluorine .18%; guaranteed uniform analysis; carload $66.25, sacked; 100 lb. multiwall bags, bulk $63.25; truck load $67, sacked, in 100 lb. multiwall bags, bulk $64, f.o.b. Coronet, Fla.

Tupelo, Miss.: Minimum phosphorus 14%, minimum calcium 28%, maximum fluorine .14% $57.07, f.o.b. Tupelo in 100 lb. multiwall bags, $54.07 bulk.

Wales, Tenn.: Minimum phosphorus 18%, minimum calcium 33%, maximum 36%, maximum fluorine .18% $71.80 (or $3.99 per unit of P), f.o.b. Wales in 100 lb. multiwall bags, $3 less in bulk.

Butte, Mont.: Minimum phosphorus 18%, minimum calcium 32%, maximum calcium 36%, maximum fluorine .18%, $81 (or $4.50 per unit of P), f.o.b. Butte, 100 lb. multiwall bags; bulk $78; truck lots of less than 10 tons $10 more, bagged or bulk.

Houston: Minimum phosphorus 18%, minimum calcium 32%, maximum calcium 36%, maximum fluorine .18% $74.35 net ton, f.o.b. Houston, 100 lb. multiwall bags; $71.35 bulk.

Cincinnati: 18% phosphorus $81.02; 14% phosphorus $71.03, f.o.b. Cincinnati.

Portland: Demand fair; supply adequate; trend unchanged; $93.50 for product carrying a minimum of 18% phosphorus, 31.5% calcium and a maximum of 0.1% fluorine; $92, dock for a minimum of 10 ton lots.

DICALCIUM PHOSPHATE

Trenton, Mich.: 18½% P $33, bulk, boxcar/hopper car; $86, bagged, in carloads or truck loads; $96, bagged, in less than carload lots; 21% P, $94.65, bulk, boxcar/hopper car; $97.64, bagged, in carloads or truck loads; $107.65, bagged, less than carload; all prices f.o.b. Trenton, freight equalized with nearest producing point.

Chicago: Bulk 18.5% phosphorus, carlots or trucks $83; 20,000 lb. or more $86 net ton in 100 lb. papers; less than 20,000 lb. $96, basis Chicago Heights, Ill., or Nashville, Tenn.; 21% phosphorus, carlots or trucks, bulk $94.65; 20,000 lb. or more, per net ton in 100 lb. papers, $97.65 and less than 20,000 lb., $107.65, basis Chicago Heights, Ill., or Nashville, Tenn.

Bonnie, Fla.: Minimum phosphorus 18½%, granular, $86 (or $4.65 unit of P), freight equalized from nearest producing point, carload basis; bulk carloads $3 less; in truck loads of less than 10 tons, $10 more. Western slope prices, for delivery at established railroad stations and by truck at regular feed mixing plants: California, Arizona, Nevada and Utah, $99.90; Washington, Oregon, Montana and Idaho, $107.15; bulk carloads $3 less; truck loads less than 10 tons, $10 more.

Columbia, Tenn.: Minimum phosphorus 18.5%, minimum calcium 24% $86, f.o.b. Columbia, in 100 lb. multiwall bags; freight equalized with nearest producing point, carload basis; bulk $3 ton less.

Texas City, Texas: Minimum phosphorus 18.5%, minimum calcium 20%, maximum calcium 23%, maximum fluorine .12%; carload and truck load $80.50, sacked in 100 lb. multiwall bags, bulk $77.50, f.o.b. Texas City.

Denver: Demand good; trend steady; supply ample; $93.50, delivered.

Cincinnati: 18½% phosphorus $92.15, f.o.b. Cincinnati.

DISTILLERS DRIED GRAINS

San Francisco: Demand fair; supply ample; solubles $79, sacked.

Philadelphia: Demand slow; supply light; $66.25.

Cincinnati: Demand poor; trend steady; supply adequate; $60.

Seattle: Demand fair; trend firm; none available; $69, delivered truck lots, sacked.

DRIED BEET PULP

Ft. Worth: Demand fair; offerings light; plain $59.90, sacked, 50 lb. bags, November.

Portland: Demand good; trend steady; supply adequate; $48.50 sacked.

San Francisco: Demand good; supply fair; $42.80.

Denver: Demand fair; trend steady; supply ample; $66, f.o.b.

Los Angeles: Demand and trend steady; supply adequate; $47.90.

Ogden: Supply ample; $39@45.

Seattle: Demand good; trend easy; supply ample; $49, delivered carlots, sacked.

Atlanta: Demand fair; trend stronger; supply limited; $62, sacked, delivered.

DRIED BUTTERMILK

Louisville: Demand fair; trend steady; supply light; $12@12.50 cwt., sacked.

Chicago: Demand fair; trend firm; supply adequate; $11.25@11.75 cwt., sacked.

Ogden: Supply average; $17.25 cwt.

San Francisco: Demand fair; supply ample; 13½¢ lb., sacked.

Los Angeles: Demand slow; trend steady; supply adequate; 12½@13¾¢ lb., sacked.

Buffalo: Demand fair; trend steady; supply limited; $12.25 cwt.

DRIED CITRUS PULP

San Francisco: Demand and supply fair; meal $48, sacked.

Los Angeles: Demand and trend steady; supply very limited; orange pulp $43; lemon pulp $41.

Atlanta: Demand good; trend steady; supply limited; pulp $47.50, meal $42.50, both f.o.b. Florida processing plants.

DRIED SKIM MILK

Louisville: Demand slow; trend strong; supply light; 12½@13¢ lb., sacked.

Chicago: Demand moderate; trend steady;

supply ample; $11.75@12.25 cwt., sacked.

Omaha: Demand good; trend strong; supply short; 15¢ lb.

Ogden: Supply ample; $15.15 cwt., drum.

Philadelphia: Demand slow; supply fair; $13 cwt.

Cincinnati: Demand fair; trend steady; supply adequate; 12@13¢ lb., sacked.

San Francisco: Demand and supply fair; 14½¢ lb., sacked.

Los Angeles: Demand slow; trend unchanged; supply adequate; 15¢ lb., less than ton lots; 14¾¢ lb., ton lots; both sacked.

Minneapolis: Good demand; supply short; price unchanged at 12¼@12½¢ lb.

Buffalo: Demand fair; trend steady; supply ample; $13.65 cwt.

DRIED WHEY

Kansas City: Demand fair; trend steady; supply adequate; regular or partially delactosed $5 cwt., sacked.

Portland: Demand fair; trend steady; supply adequate; $5.95 cwt., sacked.

Ogden: Supply good; $6.90 cwt., sacked.

Chicago: Demand slightly better; trend higher; supply fair; $4.95 cwt., sacked.

San Francisco: Demand steady; supply good; $5.25 cwt., sacked.

Denver: Demand slow; trend steady; supply ample; $5.35 delivered, truck.

Cincinnati: Demand fair; trend steady; supply adequate; $5.75 cwt., sacked.

Louisville: Demand slow; trend steady; supply normal; $6 cwt., sacked.

Minneapolis: Demand slow; supply adequate for nearby; price unchanged at $5.45 cwt.

Ft. Worth: Demand fair; supply adequate; carlots, standard $5.50, sacked, delivered Ft. Worth; ton lots $5.75, f.o.b. warehouse Ft. Worth.

Omaha: Demand good; trend strong; supply plentiful; $5.50 cwt.

Philadelphia: Demand slow; supply fair; $6.25 cwt.

Los Angeles: Demand fair; trend steady; supply adequate; $5.18 cwt., carloads; $5.35 cwt., l.c.l.; both sacked.

Seattle: Demand steady; trend easy; supply good; $5.85 cwt., ex-warehouse, l.c.l.

FEATHER MEAL (HYDROLYZED)

Ft. Worth: Demand slow; supply sufficient; 85%-87% protein $67.50, sacked, f.o.b. trucks north Texas plants.

Los Angeles: Demand fair; trend steady; supply ample; 90¢ a unit of protein, sacked.

Salisbury, Md.: Demand spotty; excess supply; $62, f.o.b.

Atlanta: Demand fair; trend weak; supply good; $66, f.o.b. Alabama and Georgia processing plants.

FISH MEAL

Louisville: Demand slow; trend steady; supply light; $110, sacked.

Ogden: Supply ample; $1.05 a unit, f.o.b. Coast; 65% $105@108.

Chicago: Demand fair; supply good; trend easier; sacked: menhaden, East Coast $85@90, Gulf $83@90; menhaden scrap, East Coast $81@86, Gulf $84@86; Canadian herring meal $1.55 a unit of protein.

Omaha: Demand fair; trend improving; supply plentiful; 60% menhaden $110, f.o.b. Omaha.

Portland: Demand fair; trend steady; supply adequate; $1.55 a protein unit, sacked.

Ft. Worth: Demand fair; supply sufficient; sacked: 65% protein Peruvian $94.50, November; 60% protein menhaden $100, delivered Ft. Worth.

Los Angeles: Demand moderate; trend unchanged; supply ample; local production, 60% protein $1.55 a unit sacked.

Cincinnati: Demand fair; trend steady; supply adequate; $108.60.

San Francisco: Demand slow; supply ample; $1.07½ a unit of protein.

Denver: Demand good; trend steady; supply tight; $1.65 a protein unit, f.o.b. West Coast.

Seattle: Demand good; trend firm; supply fair; $1.70 a unit protein, ex-dock Seattle, sacked (Alaskan production).

Buffalo: Demand fair; trend steady; supply ample; 60% protein menhaden $103 bulk, $108 sacked.

Atlanta: Demand good; trend steady; supply ample; 60% menhaden $90@95, f.o.b. Atlantic and Gulf ports.

Minneapolis: Demand poor; supply ample; price unchanged; West Coast 60% blended $118, sacked, delivered; Alaskan herring $1.55 a unit and Canadian $1.55 a unit, both f.o.b. West Coast, subject to production.

HAY

Los Angeles: Demand slow; trend unchanged; supply adequate; U.S. No. 1 $33@35; U.S. No. 2 leafy $29.50@31; U.S. No. 2 green $31@32; U.S. No. 2 $27@28.

Ogden: Supply ample; $22 ton in the field; $25 ton in the barn.

Portland: Demand slow; supply ample; trend unchanged; $34 ton baled, Portland-Seattle.

Wichita: Demand good; supply sufficient; prairie $23@25, alfalfa $24@28, baled.

Ft. Worth: Demand fair for alfalfa, practically nil for others; supply sufficient; carlots, baled, No. 1 alfalfa $40@42; No. 2 $38@40; No. 2 prairie, nominal $30@32; No. 2 Johnson, nominal $28@30, delivered Texas common points.

Philadelphia: Demand slow; supply fair; $25.50.

Louisville: Demand slow; trend steady; supply good; new hay taking over; local and nearby hay, any variety, No. 1 $28@30, No. 2 $26@28, straw $18@20.

Cincinnati: Demand poor; trend steady; supply fair; No. 1 timothy $25, red clover $28, straw $18.

Seattle: Demand and supply fair; trend firm; alfalfa, U.S. No. 2 green $35, delivered truck lots baled.

HOMINY FEED

Louisville: Demand dull; trend easy; supply normal; $46, sacked, off $3.

Chicago: Demand quiet; trend easier; supply ample; $41.

Memphis: Demand poor; trend weak; supply ample; white and yellow $40.20.

Cincinnati: Demand poor; trend steady; supply adequate; $44.50.

St. Louis: Demand slow; trend steady; supply ample; yellow $39.50.

Kansas City: Demand slow; trend steady; supply adequate; white or yellow $33@34.

Seattle: Demand good; trend easy; supply limited; $53, sacked, delivered carlots.

Buffalo: Demand fair; trend steady; supply fair to poor; $52.50, Boston.

LINSEED OIL MEAL

Minneapolis: Solvent up from $51.50 last week to $52.50; 32% expeller unchanged at $56.50.

Kansas City: Demand fair; trend stronger; supply ample; solvent process $52@52.50; old process $56@56.50, Minneapolis.

Cincinnati: Demand poor; trend steady; supply adequate; new process $51.50, old process $57.50, Minneapolis.

Philadelphia: Demand slow; supply light; 34% $69.

Portland: Demand slow; supply scarce; trend unchanged; $85, sacked.

Louisville: Demand slow; trend steady; supply good; old process $75.20, new process $70.20, both sacked.

Chicago: Demand fair; trend firm; supply moderate; Minneapolis basis: solvent $51, expeller $56.50.

Omaha: Demand fair; trend steady; supply plentiful; 34% solvent $57.50; 32% old process $63, Omaha basis.

Los Angeles: Demand fair; trend steady; supply limited; local production, 31% protein $71.

Wichita: Demand fair; supply ample; 34% $78, sacked.

Ft. Worth: Demand slow; supply sufficient; 34% protein, solvent $68, November-December.

San Francisco: Demand fair; supply ample; $69.50.

Denver: Demand slow; trend steady; supply ample; $69.30, sacked.

Seattle: Demand fair; trend steady; supply good; 34% protein (Montana) $85, delivered carloads, sacked.

LIVER AND GLANDULAR MEAL

Omaha: Demand and trend fair; supply plentiful; 65% $175, sacked, Omaha.

MALT SPROUTS

Chicago: Demand and supply fair; trend firm; No. 2 $27.

Cincinnati: Demand fair; trend steady; supply adequate; No. 1 $38.

MEAT AND BONE MEAL

Cincinnati: Demand good; trend firm; supply fair; 50% meat and bone scraps $67.50, Cincinnati.

Omaha: Demand good; trend improving; supply plentiful; $75.

Portland: Demand good; trend higher; supply tighter; $69, sacked.

St. Paul: Demand fair; supplies good; price unchanged at $68@74.

Louisville: Demand fair; trend firm; supply good; $70@75, sacked.

Chicago: Demand fair; trend easier; supply adequate; 50% protein $75, sacked.

St. Louis: Demand fair; trend steady; supply ample; $67.

Kansas City: Demand fair; trend steady; supply ample; 50% $65@67.50.

Ogden: Supply ample; 50% protein $72.50 in 100 lb. bags.

Denver: Demand fair; trend steady; supply ample; $60 bulk, $62.50 sacked.

San Francisco: Demand fair; supply ample; $1.40 a unit of protein.

Wichita: Demand heavy; supply sufficient; 50% $80, sacked, f.o.b. plant.

Los Angeles: Demand steady; trend unchanged; supply moderate; 50% protein $1.40 a unit.

Ft. Worth: Demand poor; supply sufficient; meat and bone, 50% $62.50@64.50 bulk, $65.50@67.50 sacked, f.o.b. Ft. Worth.

Seattle: Demand good; trend steady; supply ample; $1.40 a unit protein, ex-processing plant, sacked.

Buffalo: Demand fair; trend barely steady; supply light; 50% meat scraps $67.50 bulk, $72.50 sacked.

MILLFEED

Minneapolis: Demand stronger; supplies unchanged; bran and middlings both up to $37.50; red dog unchanged at $42.

Kansas City: Demand good; trend firm; supply tight; sacked, bran $37.50@38, shorts $37.50@38; bulk, bran $33@33.50, shorts $34.50@35, middlings $34.50@35.

Wichita: Demand good; supply about offsets demand; Oct. 24, basis Kansas City: bran $36.25@36.75, shorts $36.25@36.75, sacked; both bran and shorts declined $1, compared with the preceding week.

Ft. Worth: Demand good; offerings limited for immediate shipment; bran, bulk $42@42.50, burlaps $45@45.50; gray shorts, bulk $43, burlaps $45; bulk middlings $42, delivered Texas common points; bulk bran $1.50@2 higher, bulk shorts $1 higher and middlings $1.50 higher; sacked bran and shorts unchanged to 50¢ higher, compared with previous week.

Chicago: Demand and supply good; trend higher; standard bran $34, standard midds. $37, red dog $41.

St. Louis: Demand good; trend firmer; supply ample; sacked, bran $42.50, shorts $43; bulk bran $37.50, middlings $39.

Cincinnati: Demand poor; trend steady; supply adequate; bran $41, middlings $42.

Omaha: Demand good; trend strong; supply tight; sacked bran $38; sacked gray shorts $38; bulk standard midds. $28.

Buffalo: Quotations Oct. 26: Bulk bran $37@37.50, sacked $43@43.50; bulk middlings $39.50@40, sacked $45.50@46; bulk red dog $42@43.50, sacked $46@48.50.

Philadelphia: Demand spotty; trend unsettled; supply fair; bran $42.50, standard midds. $44.50, red dog $48.

Memphis: Demand poor to fair; trend steady to higher; supply ample; wheat bran $40.30, gray shorts $40.30, standard midds. $41.70.

Louisville: Demand fair; trend easy; supply good; bran $47.80, mixed feed $48.30, shorts $49.30, all sacked.

Seattle: Demand fair; trend firm; supply ample; $38, delivered common transit points, carlots.

Portland: Demand slow; trend steady; supply tight; $38@39.

Ogden: Supply good; to Utah and Idaho: red bran and millrun $37, middlings $42; to Denver: red bran and millrun $44, middlings $48; to California: red bran and millrun $44.50, middlings $49.50, f.o.b. San Francisco and Los Angeles.

Denver: Demand active; trend steady; supply tight; shorts $40.25, bran $40.75, millrun $40.75.

Los Angeles: Demand easier; trend weaker; supply limited; standard mill run $45.50@46; red bran $49@50.

San Francisco: Demand good; supply fair; millfeed $45.75, red bran $48.50.

MINERAL FEED

Portland: Demand fair; trend steady; supply adequate; $44@45, sacked.

Wichita: Demand heavy; supply sufficient; all-purpose with iodine, 50 lb. blocks $97.50; 100 lb. bags $92.50, f.o.b. plant.

San Francisco: Demand steady; supply good; all-purpose with iodine $70, sacked.

Sioux City: 50 lb. mineral blocks 8.2% phosphorus $92; 7.5% phenothiazine sheep mineral blocks $4 each.

Ogden: Supply ample; $113 ton in 50 lb. blocks; $103 ton, granular, 50 lb. bags.

Ft. Worth: Demand fair; supply adequate; all-purpose granules $90, block $70; mineral phosphorus 5% granules $106, block $113; cattle-sheep mineral 7% phosphorus granules $100, block $107; hog mineral phosphorus 2½% granules $87, phosphorus 2% $77 (all in 50 lb. paper bags).

Seattle: Demand fair; trend steady; supply good; mixer mineral $48, all-purpose mineral $85, all ex-warehouse, sacked.

MOLASSES

St. Louis: Demand fair; trend steady; supply ample; 12¢ gal., tank car, New Orleans.

Louisville: Demand fair; trend steady; supply normal; 12¢ gal. in tank car lots, f.o.b. Gulf ports.

Memphis: Demand fair; trend steady to higher; supply ample; blackstrap 12¢ gal., tank car, f.o.b. New Orleans.

Minneapolis: Prices unchanged; blackstrap $31, tank truck, delivered; beet $28, blend $29.50.

Denver: Demand fair; trend firm; supply ample; 11¾¢ gal., New Orleans; $35.09 ton, Denver.

San Francisco: Demand and supply good; $22.50, f.o.b. cars, Richmond, Cal.

Cincinnati: Demand fair; trend steady; supply adequate; 12@12½¢ gal., New Orleans.

Kansas City: Demand fair; trend strong; supply little tight; blackstrap 12@12¼¢ gal., f.o.b. New Orleans.

Los Angeles: Demand very good; trend unchanged; supply adequate; $22.50, f.o.b. tank cars; $22.75, f.o.b. tank trucks.

Ft. Worth: Demand fair; supply sufficient; blackstrap 12½¢ gal., f.o.b. Houston; delivered Ft. Worth truck $28.07, seller's market price on date of shipment.

Seattle: Demand and supply good; trend firm; $22.75, f.o.b. Seattle, tank truck lots.

Atlanta: Demand fair; trend steady; supply limited; citrus $20, f.o.b. Florida processing plants.

Buffalo: Demand fair; trend steady; supply adequate; 14¢ gal., f.o.b. Albany.

OAT PRODUCTS

Chicago: Demand fair; trend firm; supply moderate; reground oat feed $17; No. 1 fine ground feeding oatmeal $71; feeding rolled oats $75.

Memphis: Demand fair; trend steady; supply ample; 3½% protein, reground oat feed $27.25.

Minneapolis: Rolled $72@73; feeding oatmeal $62@65; pulverized $40@42.50; crimped $58; reground oat feed $18@22, all sacked.

Cincinnati: Demand poor; trend steady; supply adequate; pulverized white oats $45@52.50.

Louisville: Demand fair; trend stronger; supply normal; reground $29.40, rolled $79, feeding $78, pulverized $49.90, crimped $62.90, all sacked.

Ft. Worth: Demand slow; supply sufficient; 10% protein oat millfeed $42.70, reground $26.20, sacked.

Philadelphia: Pulverized whites, demand slow, supply fair $48.50; domestic, demand slow, supply light $25.80; Canadian oat feed, demand fair, supply very light $29.50, nominal, all sacked.

Portland: Demand slow; trend steady; supply tight; No. 2 extra heavy white $56@57.

Los Angeles: Demand slow; trend unchanged; supply adequate; local production, pulverized $67, sacked.

Seattle: Demand good; trend firm; supply fair; $57, delivered truck lots, 38 lb. or better.

OYSTER SHELL

San Francisco: Demand fair; supply ample; local $15, eastern $26, sacked.

Portland: Demand dependable; trend steady; supply adequate; $27@35, sacked.

Los Angeles: Demand fair; trend steady; supply ample; $15.40, sacked.

Cincinnati: Demand fair; trend steady; supply adequate; 80 lb. bags $23.85, 50 lb. bags $24.10, 25 lb. bags $26.35.

Louisville: Demand fair; trend steady; supply good; advance of 50¢ ton in price in this market; in 80 lb. bags $23.95, in 50 lb. bags $24.20, in 25 lb. bags $26.45.

Seattle: Demand and trend steady; supply good; eastern $36, delivered carlots, sacked.

PEANUT OIL MEAL

Atlanta: Demand fair; trend steady; supply limited; 45% expeller type $55, f.o.b. Georgia producing mills.

PEAT MOSS

Los Angeles: Demand fair; trend steady; supply ample; Canadian 5.6 cu. ft. bales $3.65.

Cincinnati: Demand good; trend steady; supply good; truck loads $3.45 a bale, f.o.b. Cincinnati.

San Francisco: Demand and supply fair; $3.65 a bale.

Portland: Demand slow; trend steady; supply ample; $3@3.15 per 5.6 cu. ft. bale.

Chicago: Demand and supply fair; trend firm; standard 7½ cu. ft. bale $3.80.

Philadelphia: Demand slow; supply fair; $2.85 a bale, f.o.b. pier.

Seattle: Demand fair; trend firm; supply good; $2.85 a bale, delivered truck lots.

POTASSIUM IODIDE (U.S.P.)

Chittenango, N.Y.: Demand good; trend firm; supply ample; standard blends, 90% KI, 10% stearate or carbonate mixture: 100 lb. drums $1.25½ lb.; 200 lb. and up $1.23½ lb., all delivered.

Cincinnati: Demand good; trend steady; 90% KI in calcium stearate or carbonate mixtures: 250 lb. drums $1.35; 200 lb. in 100 lb. drums $1.35; 100 lb. drums $1.38; 25 lb. drums $1.41, f.o.b. Cincinnati.

POULTRY BY-PRODUCTS

Atlanta: Demand good; trend steady; supply ample; meal $67, f.o.b. Alabama and Georgia processing plants.

Ft. Worth: Demand good; supply extremely light; 55% protein $77.50, nominal, sacked, f.o.b. north Texas plants.

Los Angeles: Demand fair; trend steady; supply ample; $1.20 a unit of protein, sacked.

Salisbury, Md.: Demand good; supply ample; meal $72, f.o.b.

RIBOFLAVIN

Cincinnati: Trend steady; feed grade (in feed supplements) 4¢ gm, in less than ton lots in 3.36 to 16 gm./lb. mixtures; 3¢ in ton lots or more; freight prepaid or paid to destination.

RICE BY-PRODUCTS

Atlanta: Demand and supply good; trend steady; bran $38.50@39, sacked, delivered.

Ft. Worth: Demand fair; supply scarce; rice bran $34@35, f.o.b. south Texas rice mills, sacked; hulls $4.50, sacked, f.o.b., November delivery.

San Francisco: Demand good; supply ample; bran $40, sacked.

Los Angeles: Demand slow; trend unchanged; supply very limited; California production, high fat content, bran $49@50, sacked.

SCREENINGS

Buffalo: Demand and supply fair; trend steady; ground, sacked $35.75, New York, lake and rail; unground, bulk $30, New York.

Minneapolis: Canadian supplies very tight, price holding at $82; domestics moving in better volume; more trading in lower parts of ranges, but ranges unchanged—lights $8@12, mediums $13@20, heavies $21@30; 15% flax screenings $35.

Chicago: Demand slow; trend steady; supply ample; ground grain $32.40; Canadian $25.90.

Cincinnati: Demand fair; trend lower; supply adequate; unground grain screenings $22.50@23.50.

SOFT PHOSPHATE WITH COLLOIDAL CLAY

(Sacked)

Atlanta: $20.40@20.67.
Buffalo: $25.31@25.45.
Chicago: $24.77@24.90.
Cincinnati: $23.47@23.60.
Des Moines: $25.23@26.35.
Kansas City: $24.88@25.
Memphis: $22.20@22.47.
Minneapolis: $25.93@26.06.
Philadelphia: $24.32@24.96.
St. Louis: $24.14@24.37.

SORGHUMS

Ogden: Supply ample; milo $40@41.

Ft. Worth: Demand fair; offerings increasing; No. 2 yellow milo $1.88@1.90 cwt., delivered Texas common points.

Los Angeles: Demand and trend steady; supply adequate; milo $2.67½ cwt.

Seattle: Demand and supply good; trend steady; $45, delivered carlots.

SOYBEAN OIL MEAL

Denver: Demand fair; trend firm; supply ample; 44% $59, Denver.

Atlanta: Demand good; trend steady; supply ample; 44% $56.50, delivered.

Minneapolis: 44% slightly weaker at $41; 50% solvent steady at $46.50.

San Francisco: Demand fair; supply ample; $66.90.

Cincinnati: Demand fair; trend steady; supply adequate; $49, Decatur.

Ft. Worth: Demand fair; supply sufficient; 44% $58.30@59.10, November-December; 50% $65@66.50, November-December.

Memphis: Demand fair; trend steady; supply ample; prime 44% solvent $52.50, f.o.b. Memphis.

Los Angeles: Demand slow; trend unchanged; supply ample; $69.40.

Louisville: Demand fair; trend easy; supply good; $59.80, sacked.

Chicago: Demand slow; trend easier; supply liberal; Decatur basis: 44% protein, unrestricted $47.50, ETL $45; 50% unrestricted $52, ETL $50.

Ogden: Supply ample; 41% protein $67@68; 50% protein $72@73.

St. Louis: Demand fair; trend easy; supply ample; 44% $51.

Kansas City: Demand improved; trend stronger; supply adequate; 44% solvent process $45@46, Decatur.

Omaha: Demand good; trend strong; supply ample; 44% $51, delivered Omaha.

Portland: Demand fair; trend higher; supply tight; $63.40@69.40.

Philadelphia: Demand and supply fair; 44% $46, Decatur.

Wichita: Demand good; supply about offsets demand; 44% $62, 50% $68, sacked; 44% $59, 50% $65, bulk, f.o.b. Wichita.

Seattle: Demand good; trend easy; supply ample; $63.40, delivered carlots.

TANKAGE

Kansas City: Demand fair; trend steady; supply slightly tight; 60% digester $67.50@70.

Cincinnati: Demand fair; trend steady; supply good; 60% digester $70, Cincinnati.

St. Paul: Demand and supply fair; price holding at $70@74.

Chicago: Demand fair; trend easier; supply ample; 60% protein $75, sacked.

Ft. Worth: Demand slow; supply sufficient; 60% digester $67.50, sacked, Ft. Worth.

Wichita: Demand heavy; supply sufficient; 60% $80, sacked, f.o.b. plant.

Louisville: Demand fair; trend steady; supply good; 60% $70@75, sacked.

Omaha: Demand good; trend improving; supply plentiful; $75.

St. Louis: Demand fair; trend steady; supply ample; $68.

UREA FEED COMPOUND

Lima, Ohio: Minimum 42% nitrogen, 262% protein equivalent $100, f.o.b., bagged.

Pryor, Okla.: Minimum 42% nitrogen, 262% protein equivalent; $100, f.o.b. bagged; $96, bulk, cars or trucks, freight equalized with nearest producing point.

New York: Minimum 42% nitrogen, 262% protein equivalent, $100, f.o.b. bagged; $96, bulk, cars or trucks, freight equalized with nearest producing point.

Belle, W. Va.: Minimum 42% nitrogen, 262% protein equivalent; $100, f.o.b. bagged; $96, bulk, cars or trucks, freight equalized with nearest producing point.

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FEED TECH

(Continued from page 1)

tee were much impressed with the revised curriculum for feed tech students, and it is apparent that a real effort is being made to tailor the course work to some of the specific manpower needs of the feed industry," Mr. North said.

"A better curriculum, coupled with a stronger effort to tell prospective students about the school and also about opportunities to serve agriculture as a part of the feed industry almost certainly would attract more students to the school."

Other industry representatives present at the meeting were: W. E. Glennon, president of the American Feed Manufacturers Assn.; Larry Alley, Pay Way Feed Mills; John Hemovics, Weitz-Hettelsater Engineers; Maurice Johnson, First National Bank of Kansas City; Arch McClure, Quaker Oats Co. (representing John D'Arcy of that company), and John Wessman, secretary of the Grain Processing Machinery Manufacturers Assn. (representing George Thomas, Prater Pulverizer Co.).

Representing the university staff were Dr. H. E. Jones, director of extension; Dr. C. Peairs Wilson, director of the School of Agriculture, and Dr. J. A. Shellenberger, head of the Department of Flour and Feed Milling Industries.

Other university staff members who participated in part of the meeting were: Dr. Harry B. Pfost, Dr. John Johnson, Dr. Robert Schoeff, Dean Charles Wildy, Dr. G. H. Beck and Dean R. I. Throckmorton.

The question of student recruitment came up during the committee session when it was reported that while total enrollment of 122 in the Department of Flour and Feed Milling Industries is about the same as last year, the number of feed tech students declined from 92 to 80 this year.

Also, the number of freshmen in the feed school, which hit a peak of 35 in 1957-58, dropped to 18 in 1959-60. This year, 15 freshmen have indicated that they intend to pursue feed technology studies. However, this is regarded as a preliminary count, as all freshmen in the College of Agriculture take the same courses and a definite commitment to a major course isn't necessary until the sophomore year. The staff feels that this number probably will be increased when the current freshman class completes its first year of college.

A recommendation was made that someone from the university staff serve as a "sales manager" to bring the feed industry, including feed dealers, into a program for student recruitment. Also, it was suggested that one member of the committee be assigned to work with the university and industry to formulate a recruitment program.

Research Activities

Dr. Pfost reviewed the research activities of the department, and it was recommended by the group that opportunities be sought to publicize these activities through trade publications.

The discussion on this subject also brought out that industry has shown little interest in sponsoring research. Also, because of the fire, the department has not been well situated to increase research efforts. The new building, however, will provide ideal research facilities.

Mr. Alley suggested that perhaps the Feed Production School could regularly help support a research program at the university. Also, Mr. Wessman indicated that there is a possibility that the Grain Processing Machinery Manufacturers Assn. could assist with supporting research in the department.

Dr. Beck pointed out that funds for research personnel alone are not sufficient since project expense for equipment and supplies also must be considered. A suggestion was made that the funds held by the committee, totaling $2,244, be used to support research, but no action was taken.

Eleven $400 scholarships in feed technology were assigned this year. Some scholarships have been discontinued, it was reported, as a result of the sponsors deciding to contribute to furnishing the Oscar Straube Scholarship House, a student residence established as a memorial to the late president of Pay Way Feed Mills. Only two feed tech students are among the occupants of the Straube house, with the remaining 43 enrolled in other courses.

A total of $56,673 has been spent in remodeling the house and providing new equipment. Of this, $26,100 has been contributed to date by industry, with the deficit being carried by the Kansas State University Endowment Assn. Additional contributions from industry will be sought, with the appeal based on the suggestion that a contribution to the house can provide more "mileage" in terms of help for students than a scholarship contribution. That is, the house provides help to students for years to come as each resident saves an amount in annual living costs about equivalent to the usual scholarship grant.

In view of the relationship of the Straube House to over-all student aid, the committee plans to reexamine the entire scholarship program.

Other matters discussed by the committee included the feed technology extension program, the first phase of which is to be completed and reported on shortly; dedication of the new building tentatively planned for next spring, and a new brochure describing the school for prospective students.

COMMITTEE

(Continued from page 1)

cerning administration and enforcement policy, practices and procedures of the federal agency as they affect all segments of the feed manufacturing industry, according to AFMA.

A nine-man committee has been established. AFMA is to name six men to represent all segments of the feed manufacturing industry and the Grain & Feed Dealers National Assn. three men to represent feed dealers and small country mixers.

The three representatives of the Grain & Feed Dealers National Assn. are: Charles Force, Little Bros., Kalamazoo, Mich.; Madison Clement, Clement Grain Co., Waco, Texas, and Frank T. Heffelfinger II, Peavey Feed Mills, Minneapolis.

AFMA reports that its members will be advised of developments through issuance of special reports covering each joint session.

AFMA also said that since a formal agenda will be developed for these meetings, AFMA members who might have specific suggestions for that agenda are urged to make such interests known to the AFMA office.

VET NUTRITION

(Continued from page 1)

efficient livestock production — their mutual goal, according to the announcement. The conference also is designed to promote cooperation between feed men and veterinarians, officials say.

The Veterinary-Nutrition Council, headed by Dr. J. H. Bailey, veterinarian for Walnut Grove Products Co., Atlantic, Iowa, has arranged the program.

Among the special topics will be one on "Dollars and Sense of Feed Additives." On this panel will be Dr. Spencer H. Morrison, Agricon, Clinton, Iowa, discussing beef cattle additives; Dr. Damon Catron, Walnut Grove Products Co., Atlantic, Iowa, discussing swine additives and Dr. Rollin Thayer, poultry science department, Oklahoma State University, discussing poultry additives.

A Look at Urea

Dr. Charles Norton, head, dairy husbandry department, Kansas State University, will take "A Fresh Look at Urea in Ruminant Feeds." Dr. G. T. Easley, a veterinarian from Sulphur, Okla., will talk on "Bovine Reproduction as Related to Nutrition." Also in the cattle nutrition area, Dr. A. L. Neumann, head, beef department, University of Illinois, will talk on "Vitamin A Deficiency in Cattle."

"Nutritional Requirements of Specific Pathogen Free (SPF) Pigs" will be the topic of Dr. Ernest R. Peo, animal husbandry department, University of Nebraska. The nutrition portion of the two-day program will be rounded out with a talk on small animal nutrition.

The relationship between the livestock producing industry and Food and Drug Administration will be discussed by Dr. LaVerne C. Harold, assistant veterinary medical director, F.D.A., Washington, D.C.

The remainder of the program will be devoted to furthering a better working relationship between the veterinarian and the feed man, it was stated. Dr. Jack Tumlin, McMillen Feed Mills, Decatur, Ind., is expected to cite examples of mutually profitable relationships in his presentation, "Grass Roots Cooperation: Case Studies." Dr. John Herrick, extension veterinarian, Iowa State University, will further discuss the feed man-veterinarian relationship in his talk, "Togetherness?" And Lloyd Larson, executive vice president, Midwest Feed Manufacturers Assn., will tell the group of the success of local feed man-veterinarian meetings held in Kansas during the summer.

Two committee reports from the Veterinary-Nutrition Council will also be heard. Dr. Al Gigstad, Nebraska City, Neb., will tell of progress being made in encouraging the development of joint uniform management recommendations so that all segments of service to the farmer tell the same management story. And Dr. C. L. Nelson, Jewell, Iowa, will report on progress in encouraging more exchange of information and joint research projects between veterinary medicine and animal husbandry departments in colleges and universities.

The keynote address, "Teamwork in a Changing World," will be given by Dr. C. B. Ratchford, extension director, University of Missouri.

Conference reservations, including hotel accommodations, may be arranged through the Midwest Feed Manufacturers Assn., 20 West Ninth Street Building, Kansas City 5, Mo.

CENTRAL SOYA

(Continued from page 1)

preceding fiscal year. Income tax provisions amounted to $4,170,705 this year, while $7,364,836 was set aside the year before.

Cash dividends of $1.10 a share were paid during the fiscal year at the rate of 27½¢ quarterly. This was the 19th consecutive year in which cash dividends were paid. A 2% stock dividend was distributed to shareholders in August of 1960.

In their report to shareholders, Harold W. McMillen, chairman, and Dale W. McMillen, Jr., president, said: "In the McMillen feed division, net earnings were quite satisfactory in spite of unfavorable markets for many livestock and poultry products. The over-all reduction in net earnings resulted from unsatisfactory margins in soya processing during the entire fiscal year and adverse economic conditions which affected the grain division. Meanwhile, the Chemurgy division has made continued progress in marketing its industrial and edible soya flour and proteins."

Viewing the future with considered optimism, they said, "We have great faith in our agriculture, the industries by which it is served and, particularly, in the continuing demand for protein and feed products.

"The products and services of every company division are receiving ever greater acceptance. New product applications are coming from our research laboratories continuously, and their market potential is far-reaching in this country and abroad. Our plants are in excellent repair, and our financial condition at the close of the past year's operations is very good."

Capital expenditures for the year ended Aug. 31 totaled approximately $2,600,000. The expenditures included the completion of the Chemurgy division's new isolated soya protein—Promine — plant at Chicago, which was dedicated early in the fiscal year, improvements in extraction facilities at the Indianapolis plant, installation of equipment for producing soybean flakes at a number of locations, construction of a 2-million-bushel soybean bulk storage facility at the Chattanooga plant, and construction of new facilities at the McMillen Feed Research farm near Decatur, Ind., for the purpose of developing more economical and efficient livestock and poultry feeds.

Working capital increased by $1,287,145 to a total of $48,422,908. Inventories of $28,342,563 were $3,927,159 higher than on Aug. 31, 1959.

OFFICE MOVED

PASCAGOULA, MISS.—Gulf Vitamins, Inc., has announced the transfer of its office to the Deposit Guaranty Bank Building, Room 1747, Jackson, Miss., effective Oct. 10. New mailing address of the firm is Box 1249 and the telephone is FLeetwood 4-5661, according to C. Z. Stevens of the firm.

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Commercial Solvents Earnings Rise 59%

NEW YORK—A 59% increase in net earnings for the first nine months of 1960 was reported by Commercial Solvents Corp. Net earnings totalled $3 637,277 or $1.30 per share, and are the company's highest net earnings for the first three quarters since 1951. This compares with $2,285,061 or 82¢ per share for the same period last year.

Third quarter net earnings were $1,019,099 or 37¢ per share as compared with $917,749 or 33¢ per share in 1959.

The sale of the company's automotive chemicals marketing operations earlier this year is reflected in third quarter sales of $14 468,349, as compared with $19 348,071 a year ago. Nine months sales totalled $48,853,-861 as against $51,822,428 last year.

Iowa Feed Company Elects New President

DES MOINES — George E. Drake has been elected president of Viking Feeds, Inc., to succeed the late Edward Wittler. Mr. Drake, with the firm 11 years, is also secretary and general manager.

Everett Meister, district manager since 1956, was elected vice president. R. W. Retherford was reelected treasurer and assistant secretary.

SOYBEANS

(Continued from page 4)

be a bigger market supplier of this commodity than last year.

It's possible there will be a good outlet for soy and cotton oil this coming year—a poor Spanish olive oil crop is now anticipated by FAS—which would support a good crush of beans.

Good Bean Price

One may only think of a good firm price for beans this crop year. However, the distant commodity futures market prices are showing about a 10¢ carrying charge which is not an attraction to the longs in the market.

However, it may be possible that the USDA crop reporting service is cautiously recommending a "yellow" light on its report of this week.

This stock position report on soybeans says in part—"from an estimated supply of 600 million (including the old carryout), there was a disappearance of about 577 million bushels, including exports of slightly more than 141 million bushels." USDA mentions an estimate of a new crop disappearance of about 3 million bushels from the new 1959 crop in September, 1959, giving it a net estimate for over-all disappearance of about 570 million bushels, a difference of about 1% between indicated production and stocks.

A reliable source here says that USDA may be off balance by as much as 12 million bushels. And in the December final crop report—a report where the USDA statisticians correct their judgments or errors—it may finally show up that the projected carryout on Oct. 1, 1960 may be a deficit of as much as 10 million bushels over demand.

CONDEMNATIONS

(Continued from page 1)

of roasting turkeys have been at the rate of about 1.15%.

It appears to this writer that the turkey industry should accept these facts immediately—since they come from official economic data within USDA's inspection service.

Air-Sac Disease

It is admitted, however, that there have been isolated flocks of turkeys which have appeared with a high incidence of air-sac disease—widely known in the broiler industry but only now beginning to show in the turkey industry.

That this new phase of air-sac disease now appears in the turkey industry is due to the fact that the turkey industry is now fully under the USDA mandatory Poultry Inspection Act for the first time.

As may be seen from the official condemnation figures quoted, even the appearance of air-sac disease in the turkey industry is small or inconsequential. Nevertheless, the USDA poultry inspection service staff is interested—not from any "cop-on-the-beat" attitude or punitive action against the turkey industry, but primarily from a scientific view wherein USDA may ascertain what causes even these isolated conditions and what may be done constructively to prevent or correct the cause.

Temporary Enthusiasm

Preliminary observations are that for this particular year many small turkey flock owners have been swept away with temporary enthusiasm for the turkey market and have bought eggs from breeding stocks which ordinarily would not qualify for marketing among the better informed turkey industry producers.

The result has been unfortunate for some flock owners, since the basic poor breeding stock appears to have transmitted a tendency to air-sac disease among the resultant birds.

There is also within official circles the suspicion that poor husbandry, inadequate sanitary controls in houses, poor ventilation and other factors known to competent broiler producers can be stamped out before any wider disease incidence is noted.

It was made known to this reporter that USDA probably will be asked by the turkey industry to undertake a research program under the provisions of the Hope-Flanagan Act to investigate this appearance of air-sac disease in turkeys.

VISITORS

(Continued from page 5)

by the Coccivac vaccination method of combatting coccidiosis. Some 41,-000 birds have been vaccinated at the farm, and none have shown coccidiosis symptoms in up to 24 months time, Dr. Knodt said. Before the vaccination program was started, extensive losses from the disease had occurred at the farm.

The visitors showed considerable interest in this information as coccidiosis also is a problem in Japan.

The tour also included inspection of the Pigloo system for swine in which sows are placed in isolation in individual huts before farrowing. Comparisons with central farrowing systems, also at the farm, show that the Pigloo method reduces diseases, losses and labor costs, Dr. Knodt said.

Sponsored by the U.S. Feed Grains Council, the U.S. tour helped acquaint the Japanese agricultural leaders with grain production and marketing, feed manufacturing, nutrition and disease research and feeding in several stops across the country.

Production Up

Meat, milk and egg production has been stepped up sharply in Japan in recent years, and this has resulted in increased imports of feed grains. A poultry broiler industry is beginning to develop, and some observers see a possibility of large expansion of feed demand by these operations.

It is estimated that total meat production, including chickens, will increase more than 150% in the next 10 years. Greatest recent growth has been in hog production, but it is considered debatable whether this trend will continue, according to a U.S. Embassy report.

Currently, the U.S. supplies only about 30% of Japan's corn imports, due largely to Japanese preference for corn of darker color. This preference, attributable to consumer dislike of lightly-colored egg yolks and animal fat, could be overcome by use of off-setting feed additives, the Embassy report says. It predicts that with reasonably competitive prices and success in overcoming the color problem, U.S. corn and sorghum exports to Japan could increase 300,000 tons or more a year.

CALIFORNIA

(Continued from page 6)

to express the zinc requirement in a practical ration in terms of total zinc because much of it may be biologically unavailable.

CALCIUM AND PHOSPHORUS STUDIES WITH SHEEP—The calcium:phosphorus ratio has been overemployed in ruminant nutrition, for it has been shown that the classical idea was not correct.

This observation was made by Dr. G. P. Lofgreen of the University of California in a paper on calcium and phosphorus studies with sheep.

Although there is evidence with laboratory animals indicating that the Ca:P ratio in the diet is important, the evidence with ruminants does not consistently indicate detrimental effects from feeding ratios deviating widely from the thought to be optimum, Dr. Lofgreen said.

It was found in special California work that Ca:P ratios of 0.8:1, 2.8:1 and 6.0:1 were without effect upon the amount of either calcium or phosphorus absorbed. The amount of either element absorbed was a direct reflection of the amount consumed, and when the results were adjusted to an equal intake, ratio had no effect upon absorption. The excretion of metabolic fecal phosphorus, however, was influenced by the amount of both calcium and phosphorus absorbed since when adjusted to an equal phosphorus absorbed, there was still a significant effect of ratio.

It may be, said Dr. Lofgreen, that one of the reasons for the confusion which exists in the study of Ca:P ratios is that there may be extreme variations in the amount absorbed and if the effect is upon excretion, it is logical to assume the levels fed will have an influence only if absorbed.

Dr. Lofgreen presented the results of some California studies on phosphorus availability using the radioactive isotope of phosphorus. Using the technique which he described with mature wethers, phosphorus availability was studied in dicalcium phosphate, bone meal, soft phosphate and calcium phytate. "There was no significant difference between dicalcium phosphate and bone meal," Dr. Lofgreen said, "approximately half the phosphorus from each source being available for absorption. The phosphorus in soft phosphate, however, was only 14% available and was highly significantly lower than any other supplement. The availability of the phosphorus in calcium phytate was significantly lower than that in dicalcium phosphate and bone meal. Since much of the phosphorus in natural feeds is in this form, further studies should be conducted in this field."

ENERGY VALUES OF FEEDSTUFFS AND THEIR USE IN POULTRY NUTRITION—It doesn't matter too much which set of energy values is used, provided things are kept in perspective, said Dr. F. W. Hill, head of the California poultry department. However, there are certain advantages in the use of metabolizable energy values, which are generally very stable and highly fixed numbers. In general, there is a parallel variation between metabolizable and productive energy values, but the ratio between the two shows some large discrepancies in some cases. For example, productive energy values under-estimate soybean meal and over-estimate meat scraps. Also, there are discrepancies among various fats.

Dr. Hill went on to show data indicating a close relationship between calculated and determined metabolizable energy values. Net energy values, however, cannot always be added in the same way in a feed mixture.

Some feedstuffs, such as soybean meal, are highly consistent in metabolizable energy values, and average figures can be used with confidence. Hominy feed, on the other hand, is highly variable in composition, and there is a big range in metabolizable energy values. Changes in fat or fiber can be used in estimating what energy value will be, Dr. Hill noted.

He also presented data showing how there is a variation in energy values of fats, with vegetable oils high in comparison to animal fats. Energy yield from a mixture of fatty acids is less than for intact fats, he continued.

Discussing uses of metabolizable energy values, Dr. Hill noted that they can be used to predict differences in ration performance. Energy has some small effect on egg production, but the big influence is on feed efficiency. Efficiency of performance is related closely to energy values in egg production and broiler production. Energy values also are a tool in evaluating the processing of ingredients.

Dr. Hill also commented on the relation between energy values and other nutrient values, including energy-protein ratios, which are of some value.

The utility of energy figures is primarily in relation to economic considerations; energy has a large bearing on the economics of feeding. Cost per calorie can be used, but other nutrients are involved. Dr. Hill showed how algebraic systems may be used to calculate ingredient values. The systems over-simplify matters, but they are one way to get economic values of ingredients. Regardless of the system, he continued, we know that an animal responds to energy concentration.

In general, the relationship of feed efficiency to energy concentration tends to hold, but there are certain exceptions. One is that the chick responds to certain vegetable fats, which stimulate growth and feed efficiency. Because of this, metabolizable energy values under-estimate the value of fat. Another exception is found in laying hens. Most hens adjust feed intake to energy concentration, but if there is a sudden shift in energy content, going to higher energy levels suddenly, the birds overconsume energy. Dr. Hill also noted that typical meat-type breeding hens tend to over-consume energy.

In meat-type birds, Dr. Hill concluded, there is no ceiling on energy; it is strictly a matter of economics. Also, there is no ceiling for high-producing layer stock, but changes should be considered for breeding stock. For replacement pullets, there appears to be some value in limiting energy.

INTERPRETATIONS OF NUTRITIONAL LITERATURE—There are many mistakes and errors in concepts to be found in nutritional literature, declared Dr. H. J. Almquist of the Grange Co., Modesto, Cal. He presented various examples to bear out this view.

"This discussion may have seemed hypercritical," he said in concluding the paper. "I do not wish to cast any reflections on the many, many research jobs that have been well done. On the other hand, I think it is about time that the mistakes, errors in concepts, 'booby traps,' etc., that are still found should be called to the attention of all."

Dr. Almquist was unable to be present at the conference, and his paper was read by Stanley Maurer of the Grange firm.

Dr. Almquist raised questions in regard to various aspects of nutrition research. For example, he commented on the literature on studies of requirements of identified nutrients. This body of literature, while contributing greatly to general progress,

ANIMAL INDUSTRY CONFERENCE—The California Animal Industry Conference included talks and panel discussions of various nutrition and other subjects. Some of those taking part in the program are pictured here. Left to right are: First photo, Dr. G. P. Lofgreen, University of California, and Stanley Maurer, the Grange Co., Modesto. Second picture, W. F. Rooney, extension poultry specialist, and Hobart R. Halloran, Halloran Research Farm, Modesto. Third photo, Dr. Blaine McGowan, University of California; Herb Nootbaar, H. V. Nootbaar & Co., Pasadena, and Dr. Daniel G. Aldrich, Jr., University of California. Fourth photo, T. D. Griffin, Bell Grain & Milling, Inc., Pomona, and Joe E. Burger, H. V. Nootbaar & Co., who addressed the banquet on "How to Get Better."

does not help much in the immediate problem of the practical nutritionist who must decide now how much of a nutrient is required for his animals to show maximal response. He presented illustrations and an analysis to indicate that the nutritional requirements of animals have frequently been subject to underestimation. "I feel," he said, "that blind application of formal statistical methods possibly has obscured as much information as proper application has clarified."

Dr. Almquist noted that statistical methods are valuable but that misuse comes in substituting them entirely for judgment.

It is fortunate, he said, that a law can be applied to the upper curved portions of a response curve, by which much of the results in this zone can be clarified. This is the law of diminishing returns. It is not a new law but has actually been apreciated very little by nutritionists, "except recently after a few of us have persistently pointed out the value of the law."

He went on to show a logarithmic plot which he explained can put the picture on a diminishing return basis which has several advantages. By applying such methods to data existing in the literature, Dr. Almquist said he has been able to derive further information not brought out in the original reports. "In some cases," he said, "I have found the animals doing a good consistent job, while the same could not be said for those reporting the work."

Comments on calorie-protein also were made by Dr. Almquist. He noted, among other things, that the C/P ratio is independent of actual calorie and protein intakes, and it is the latter that the animal grows upon.

It is possible, he said, to have a series of diets with a wide range of ratios but yielding essentially the same growth results. This is attributable to the fact that surplus protein can be converted to calories and the caloric value of such converted protein is about equivalent to that of the same amount of carbohydrates. He went on to show a correlation of growth results with the product of the protein and the non-protein caloric intake in various diets. Dr. Almquist said he did not propose that a series of "products" be adopted to guide formulation. His main purpose in the discussion of calories and protein was to "show how apparent chaos will clear away when a more basic approach is made and the system and order of nature have opportunity to show through."

Dr. Almquist also offered examples of incompleteness of many research studies, and he commented on what he considers other errors and fallacies.

GROWTH FACTORS IN FORAGES—There are many unidentified materials in forages, and many are known to be important. Efforts are now being made to determine means of controlling this sort of thing.

This was explained by Dr. George O. Kohler of USDA's western utilization research and development division, Albany, Cal., who presented considerable information on estrogenic activity in alfalfa.

Dr. Kohler noted that there is considerable variation in estrogenic activity in alfalfa, and it is not just stage of growth that is involved.

He mentioned that some breeding problems in animals apparently have been caused by estrogens in forage, but there also is evidence that they can be used as growth promoters. He cited Nebraska work in which alfalfa increased steer gain. When stilbestrol was in the ration, there was less response from the stilbestrol than normally is expected.

Dr. Kohler also presented new data showing that high-estrogen dehydrated alfalfa increased lamb gains over those obtained with low estrogen dehy.

He also told of special work with a 10-acre field of alfalfa where the coumestrol content got up to more than 200 ppm, increasing as the alfalfa became older. He pointed out that it is known that high levels occur in other alfalfa, too, and further work is being done.

BEEF ANIMAL FIELD TRIALS—Field trials have been used extensively in California as a means of supplementing and extending experiment station research, it was pointed out by Horace T. Strong, California livestock extension specialist. There are recognized problems and limitations connected with field trials, and they must have the support and interest of the cooperator. Also, they must be carefully planned and well designed, and results must be carefully analyzed. A single field trial, as a rule, does not provide sufficient basis for general recommendations. The number of replications necessary, Mr. Strong said, will vary with type of trial and results obtained.

One trial with enzymes, Mr. Strong explained, has been completed under a project involving several cooperating feedlots which conducted systematically designed tests. More than 900 animals in seven feed yards in different parts of the state took part. Mr. Strong's data showed considerable range in gain and feed efficiency among both control and test animals. The average daily gain for control animals in the 100-day test was 3.01 lb., compared with 3.03 for the test animals. Feed per pound of gain averaged 8.77 lb. for the control animals and 9.20 for the test animals.

Farm advisors also conduct independent trials, frequently in cooperation with commercial concerns. Within the past year, a number of advisers cooperated in setting up so-called "all-barley" feeding trials using a commercial protein supplement. Other all-grain trials have used milo in various combinations with barley and protein supplement. Results have been somewhat varied but have quite consistently shown an increased feed efficiency and in most cases a somewhat higher dressing percentage. Differences in daily gain have been small but slightly in favor of the all-barley fed animals.

Average daily gain for control animals was 2.74 lb., compared with 2.85 lb. for animals on all-concentrate rations. Feed per pound of gain was 8.90 and 7.40, respectively. Dressing percent was 60.85 for the control animals and 62.14 for those on all-concentrate rations.

POULTRY FIELD TRIALS—A restricted lighting study with chickens raised for laying flock replacement was one of the field trials described by W. F. Rooney, California extension poultry specialist.

Research in the poultry department at Davis on a small number of birds indicated that improved production could be obtained by using 6 hours of light for part of the growing period and then going to 14 hours for the laying period. Following up on this, a study was conducted on a ranch near San Jose to compare restricted lighting with the ranch's usual lighting program. The control pullets, hatched Feb. 19, had natural light during the growing period, while the test birds were restricted to 8 hours of light per day from 8 to 12 weeks and 6 hours of light from 12 to 20 weeks. Better production was obtained from the pullets treated with restricted light, and for some unexplained reason this group had less mortality. On a hen housed basis, the restricted light group laid 12.5 more eggs per hen than the control group up to 17 months of age. Production on a hen day basis was 3.2% higher in the group given restricted light.

There are relatively few producers using this program at present, Mr. Rooney said, and more field evidence is needed on what can be done with restricted lighting and other lighting programs.

He also told how quite a few turkey breeders are trying restricted light to produce turkey hatching eggs out of season. Under field conditions turkey hens generally respond poorly to lights unless they have had a period of naturally short days prior to lighting.

Mr. Rooney went on to describe a field study on the inverted egg case to reduce labor both on the farm and in the processing plant.

Data from cost studies also were discussed. The largest cost study is one conducted in San Diego County among 40 poultrymen. Eggs laid per hen in the 1959 study averaged 243, ranging from 219 to 272. Feed cost per cwt. averaged $3.23, with a range of $3.08 to $3.59. Average price per dozen was 29.8¢. Average net cost per dozen was 28.4¢, with a range of 23.6 to 36.3¢. Management income per hen averaged 33¢, with a range of minus 99¢ to plus $1.60. Feed efficiency averaged 4.5 lb. of feed per dozen.

RESEARCH IN BLOOD GROUPS OF TURKEYS—G. R. J. Law of the University of California presented a progress report on a study to examine red blood cell antigens of the turkey and to study the interrelationships of these inherited antigenic traits. Associated with this is a study of populations of turkeys with respect to the distribution of blood groups among various strains and lines of turkey.

This purpose involves three areas of investigation: (a) Preparation of blood typing reagents, (b) genetic tests of individual differences and (c) use of genetic data in population analysis. The present status of the project after two years is in the area of genetic studies of the blood factors identified by a series of reagents.

Mr. Law said the application of the studies to analysis of populations, especially from the point of view of the turkey breeder, is a phase for future research. When sufficient characterization of the factors so far revealed has been accomplished, the scientists should be in a position to undertake examination of larger populations with respect to frequency and distribution of various blood groups.

Chicks Placed in Principal Broiler Areas

(000's omitted)

Week ending	Maine	Conn.	Penn.	Ind.	Ill.	Mo.	Del.	Md.
August 20	1,117	398	733	664	104	679	1,740	1,757
August 27	1,091	441	688	646	97	625	1,738	1,868
September 3	1,073	353	798	588	92	627	1,741	1,825
September 10	1,066	400	667	654	104	719	1,573	1,995
September 17	674	364	600	588	118	603	1,572	1,973
September 24	1,008	473	695	610	120	650	1,442	1,894
October 1	1,068	433	529	581	102	615	1,552	1,903
October 8	1,037	358	778	589	68	643	1,429	1,838
October 15	908	508	698	520	40	518	1,596	1,752
October 22	993	362	595	643	78	602	1,312	1,980

Week ending	Va.	W. Va.	N.C.	S.C.	Ga.	Fla.	Ala.	Miss.
August 20	1,052	457	2,954	364	5,940	196	3,298	2,112
August 27	931	407	2,850	331	5,969	203	3,176	2,032
September 3	817	413	2,838	302	5,972	245	3,232	1,994
September 10	784	420	2,693	300	5,960	206	3,000	2,022
September 17	790	363	2,717	297	6,139	185	3,116	2,009
September 24	778	313	2,645	297	5,961	200	3,107	1,944
October 1	678	423	2,844	303	5,946	202	3,085	1,880
October 8	809	326	2,873	326	5,694	202	3,084	1,884
October 15	713	356	2,809	317	5,750	198	3,099	2,027
October 22	684	385	2,746	302	5,624	228	3,053	2,057

Week ending	Ark.	La.	Texas	Wash.	Oregon	Calif.	Total 22 areas 1960	Total 22 areas 1959
August 20	3,478	383	1,912	318	228	886	30,853	30,402
August 27	3,321	351	1,740	333	180	964	29,991	29,236
September 3	3,104	356	1,703	298	197	961	29,529	27,913
September 10	3,035	356	1,611	233	219	1,020	29,037	26,268
September 17	3,073	334	1,583	278	192	920	28,489	24,682
September 24	2,905	325	1,658	242	218	1,006	28,491	24,573
October 1	2,893	356	1,623	216	195	1,109	28,536	24,612
October 8	2,865	346	1,615	256	208	1,023	28,261	24,474
October 15	2,884	319	1,635	218	214	1,024	28,103	23,755
October 22	3,022	337	1,608	263	137	892	27,903	24,066

MARKETS

(Continued from page 1)

ment period on the part of the country dealer, with the mixers showing some restrained optimism over a pick-up in volume sometime next month. But for the time being, business is on the 'soft' side."

The turn to lower temperatures and of a seasonable character has resulted in some very moderate betterment in the demand for feed for laying flocks; this improvement has been extremely restrained, however, and only by comparison with a rather quiet two weeks just preceding would it be described as being better.

Running time, as might be expected under current circumstances, is barely making the grade on a forty-hour week basis, but there is an undercurrent of feeling that November will be different.

Mountain States

Feed dealers in Rocky Mountain states report varying business conditions. Feed volume the past week or two generally has been lower than the same period last year, due in part to high prices of range cattle, and the fact that feeders just aren't buying.

Range conditions are still good and the weather is good. Cattle are somewhat slower coming into feed yards for this time of year.

Other dealers, however, report that feed volume is just about the same as last year, although prices generally are somewhat lower.

Turkey feeding is just about over.

Pacific Northwest

Mixers throughout Oregon, Washington and Idaho this week reported that most formula feeds sold in very good volume, with the various poultry items appearing to set the pace. However, they reported that there was a surprisingly good movement of dairy and cattle feeds.

Feed ingredient prices leaned toward the firm side, despite slow trading during the period. There were reports that the demand was still quite thin in some spots, but available offerings of most principal ingredients appeared to be in firmer hands.

Feedstuffs supplies were generally plentiful, but marketings looked to be more orderly and, as a result, most markets were stabilized.

Oil seed meals averaged stronger with $1-$2 a ton advances for soybean meal and a firmer undertone for cottonseed meal. Meat and bone meal listings closed $2.75 a ton higher in front of a dependable demand.

Whole feeding grains were unchanged to lower, as in the case of corn. Milo prices dropped 50¢ to $1 a ton. Barley and oats quotations held steady and unchanged, with barley moving to feed interests in record amounts.

Pacific Northwest alfalfa hay markets were unchanged and mostly steady during the period, with trading moderately slow under continued slow buying interest.

South Central

Feed mill operating time is getting a mild shot in the arm this week from a small increase in cattle and hog feed deliveries, according to reports from feed manufacturers. Practically all of the plants in the area are on a five-day production basis, with at least one mill operating an extra day on overtime.

Demand for the general line of feeds holds up very well, even though farmers are extremely busy in the fields. Soybean harvesting is practically completed, and corn picking has made considerable progress. Hog prices broke a little last week, dropping the corn-hog ratio to 15.8.

Currently hog marketings are lower despite the better prices being paid. An observer suggests that farmers may be holding back hogs to turn them into fields to eat the corn dropped by pickers.

Price lists show only minor changes from week to week. Feed ingredient costs move within a narrow range, with small gains on one item usually offset by small losses on others.

Ohio Valley

Although there was virtually no change in the movement of formula feeds this week in the Ohio Valley, the below freezing temperatures that blanketed the area during the first half of the week provided an indication of what was described by one manufacturer as likely to lead to "the development of an increasing sales thrust upward."

Whether this happy situation will be realized during the weeks ahead is a question that cannot be answered definitely, in view of the report this week by the U.S. Department of Agriculture that this country's stocks of feed grains are now 13% more than they were a year ago. As one broker remarked after reading the report, "There still would be ample stocks of animal feeds available if not a ton were planted or harvested during the coming year."

But this gloomy outlook is not generally held by area feed manufacturers, most of whom believe that, with the return of severe winter weather, there will be sufficient demand for formula feeds to keep their plants busy—perhaps even some overtime. If that were to happen, it would indeed be a pleasing experience after the long months of having to report "no order backlogs."

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SURVEY

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form of service. Many producers have come to rely upon their feed company for a major portion of their working capital.

Quality Important

Quality of the feed enters the picture, too. "A farmer, if he wants to, can keep accurate records and know the costs of feed prepared on the farm. But if he goes beyond the step of buying concentrate and mixing it with grain, he can't be at all certain of the quality," says one industry spokesman.

"Feed quality is a factor worth pointing out," seconds another feed man. "With a commercial concentrate or complete feed, the farmer doesn't have to wonder whether or not the ration is properly balanced, or whether he is getting a good return on his feed dollar."

It's true that farmers, when they compare commercial feed with farm-produced feed, must assume that feeding results will be equal. "This is an important assumption," says one man, "and I question its validity."

The farmer making his own feed does lack quality control. This concerns both incoming ingredients and the end product. Many feed manufacturers have made large investments in quality control facilities and personnel, and farmers concede that this is a valuable service.

The importance of reliable research was also mentioned by an Iowa dealer handling a major feed line.

"I know how much farmers in this area are affected by the research that goes into a particular feed," he says. "I used to be in the feed manufacturing business myself—until my customers started going somewhere else to buy the major feed line that I now represent as a dealer. That research pays for itself."

It isn't hard for farmers to locate good research that will show which formulas are best for the type and age of livestock being fed, one man points out, but can they make the necessary changes in formula to take advantage of price differentials in different feedstuffs?

Each time a substitution is made, the entire formula must be re-evaluated to insure a balanced feed. This takes a knowledge of nutrition, and presents a problem for the farmer trying to work from "the ground up."

The cost of the best formula today may not be the cheapest a month from now, but just following the price fluctuations can be a time-consuming job that isn't appealing to many farmers.

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